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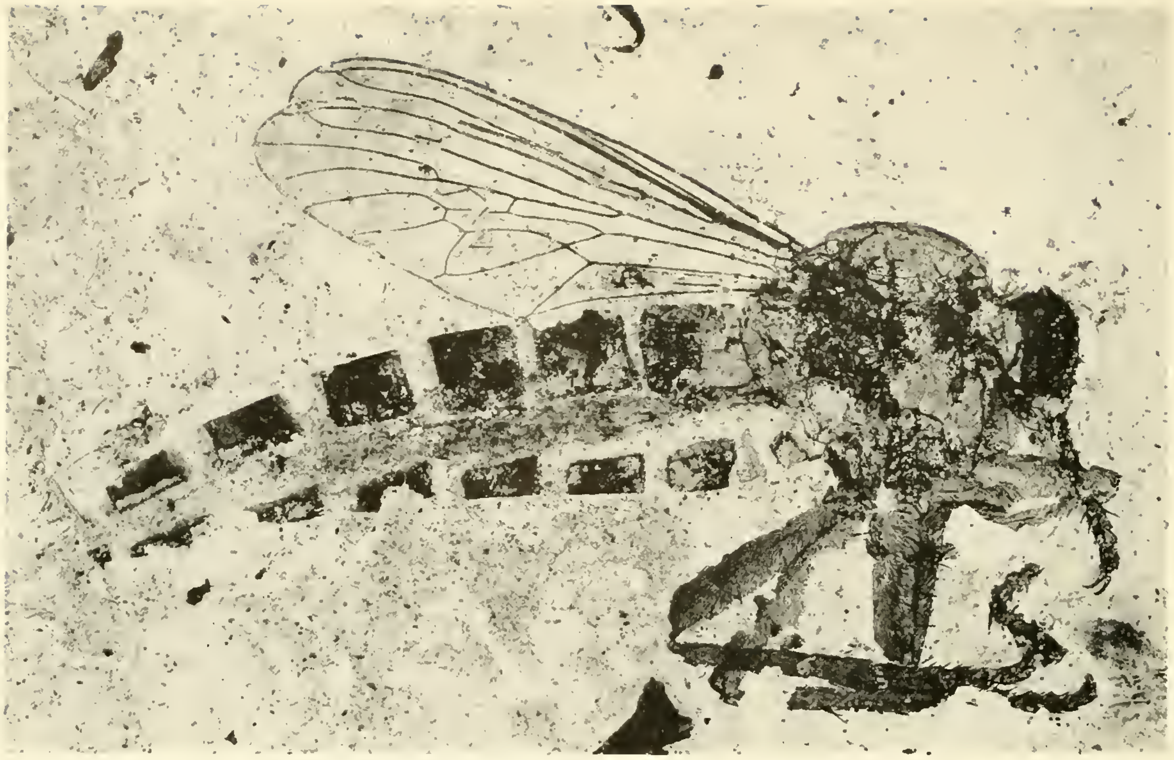
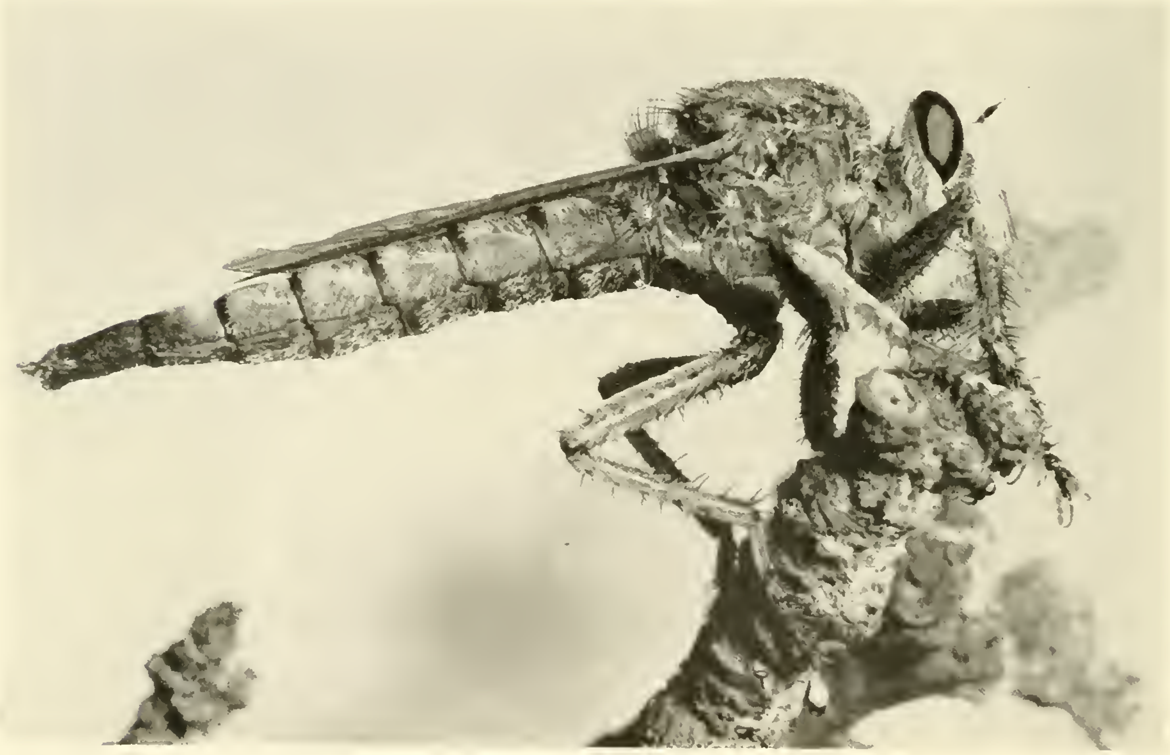


A Fossil asilid Senoprosopis (Eosenoprosopis) romeri Hull, preserved in Florissant shale.
(Photograph courtesy Dr. Frank M. Carpenter.)

A Recent asilid Protocanthus philadelphicus Macquaert.
(Photograph courtesy Dr. Alexander B. Klots.)



Robber Flies of the World

The Genera of the Family Asilidae

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Research Associate, Smithsonian Institution

Publications of the United States National Museum

The scientific publications of the United States National Museum include two series, *Proceedings of the United States National Museum* and *United States National Museum Bulletin.*

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This work forms number 224 of the *Bulletin* series.

Remington Kellogg,
Director, United States National Museum

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The extensive collections at the British Museum (Natural History), the Hermann collection in the Staatssammlichen Museum in Munich and the larger collections in Australia have also been studied, as well as material loaned by dipterists in the United States and abroad.

The National Science Foundation gave a grant which made possible the study of museum collections in the United States, England, Europe and Australia. The University of Mississippi provided a temporary Research Professorship, permitting travel time. I wish especially to thank the Honorable Walter Sillers of Rosedale, Mississippi, and the Honorable R. D. Morrow, Sr., of Brandon, Mississippi, for their willingness to encourage state support for this monograph.

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January 15, 1961

Robber Flies of the World:
The Genera of the Family Asilidae
Part 1

Introduction

The robber flies, or Asilidae, comprise one of the largest and most abundant families of present day insects. Distributed through all parts of the world, over 400 genera and subgenera have been proposed and about 4,761 species are known. In addition, 18 genera and 39 species have been described from the Eocene, Oligocene, and Miocene; 15 of these genera are also Recent. Because of their predatory habit of feeding on other insects and their voracious appetites, they contribute to the maintenance of the natural balance among insect populations. To some extent, parasitic wasps and flies are taken by them, but much of their prey consists of plant-feeding insects. Certain species are known to seriously deplete the populations of apiaries. The adults are, with few exceptions, active flies, of considerable size and readily attract attention.

Hermann Loew in 1847 began a world study of the Asilidae; his publications on this project continued until 1874. During the last half of the nineteenth century, many dipterists contributed to our knowledge of this family. Today, much excellent work is being done regionally on the Asilidae. The present study integrates all previous work, in order that a basis for a world concept of the group may be laid.

It is hoped that this study will afford persons in widely separated parts of the world means of identification of their own fauna and a knowledge and appreciation of the fauna of other regions. Consideration has been given to the evolutionary trends and distribution of the genera, tribes, and subfamilies.

History of Studies

Linnaeus (Linné; 1758), in his tenth edition of "Systema naturae" erected the genus *Asilus*, ascribing to it 11 species, and added 4 others in his twelfth edition (1767) of the same work. Of these 15 species included in the genus by Linné, 10 have been assigned to other genera, 2 remain in *Asilus* and 3 cannot be recognized with certainty, because of the brevity of the original descriptions. A list of reassignments of Linné's species is given under the subfamily Asilinae. His species *Asilus crabroniformis* (1758), stands as the type of the genus *Asilus* and the type of the family Asilidae. Family status is credited to Leach in Samouelle (1819). J. C. Fabricius, in five publications from 1775 to 1805, describes 76 exotic and European species and erected the genus *Damalis*. Wiedemann, from 1817 to 1830, described 235 species, many of which were exotic. He proposed 3 genera, all of them used today. Meigen, 1800 to 1838, described many species in his treatment of the European asilids and in an early work of 1803 erected 4 genera, 3 of which now represent subfamilies.

About the middle of the nineteenth century, a number of dipterists made significant contributions to the study of the family Asilidae; among them were Loew, Macquart, Walker, Rondani and Bigot, but none more important than the indefatigable Loew, who, besides describing great numbers of species, proposed 83 genera, 75 of which are still recognized, although 5 of these names required changing on account of preoccupation. Later, considerable work was done by Schiner, Williston, Lynch Arribálzaga, Philippi, Jaennicke, Roeder, and Becker. By 1900 a total of 254 genera had been proposed, of which 170 are still valid. During the first half of the twentieth century, many careful students of the Asilidae have appeared. Very excellent contributions have resulted from the studies of Hermann on the South American genera, Engel in his monumental volume on asilids in Lindner's "Die Fliegen der palaearktischen region" and Efflatoun's "A monograph of Egyptian Diptera. Family Asilidae," besides the work of Oldroyd, Becker, Bezzi, and Ricardo. White made pioneer studies of Australian asilids and was later followed by G. H. Hardy.

In North America, Hine became early interested in this family. Shortly thereafter Curran, Bromley, Pritchard, Wilcox, James, and Martin industriously contributed many papers; and recently Carrera has made important contributions to a study of the South American fauna. A recital of past studies of Asilidae reads very much like a directory of dipterists, so popular has been this family and I have for reasons of space omitted many well known dipterists who made briefer contributions. The student is referred to the bibliography for the work of others to whom credit is also due.

The bibliography covers a span of 200 years and contains the work of about 387 authors and 1344 titles.

Comprehensive bibliographies in all fields of entomology are scarce and much to be desired. In Diptera the fine bibliographies of Bequaert (1953) on Hippoboscidae, and of Henning (1952) are superior to any I have ever worked with. Crampton (1942) gives 356 references in a bibliography of Diptera morphology. In this work the bibliography of the Asilidae ends with the year 1954, except that references I have been able to obtain for the years 1955–1960 are included.

The species list, which has been included with the genera and subgenera, is offered as a practical and immediate aid for the encouragement of students, new and old alike. In the preparation of these species lists I have followed Kertész (1909) in his world catalog of Diptera, except that for Europe I have adopted almost entirely the disposition of Palaearctic species as given by Engel (1925–30). For the United States most asilid species are well known, except those of the genus *Asilus* Linné, which require additional study. The scope of this study of genera has not permitted a review of the more than 4,700 species in order to substantiate their generic location. Where I have been privileged to see specimens of species, I have used the information acquired to assign them to a proper place according to the concepts of this study; otherwise not. The Asilidae of Europe and North America above Mexico are rather well known, but many of the species of older authors, especially Macquart and Wiedemann and others remain but poorly known and require new study in the light of present day generic concepts. This is especially true of *Asilus* Linné *Dasypogon* Meigen, and *Laphria* Meigen. The checklist of the species of Asilidae ends with 1954, except those of Wilcox and Martin, and Hull through 1958.

I have adopted much but not all the synonymy indicated or suggested by Ricardo in her valuable series of papers; I have done so particularly in those cases where she has had access to the Walker and Bigot types. Ricardo also made several trips to see the Macquart types. And for the same reason I have accepted the synonymy given by G. H. Hardy where he has stated that he has seen the types. Perhaps this is an appropriate place to call attention to the statement of Collin (1933), who in his study of the Diptera of Patagonia and South Chile notes that *Empis cotoxanthus* Blanchard is certainly not an empidid. Collin suggests that it may belong to the family Asilidae; it should prove most interesting to students of this family.

This work attempts to furnish the minimum adequate illustrations for each genus. Past publications on the family Asilidae have provided, in rather scattered places, more than 3,781 figures of asilids or parts thereof. This figure represents a tally for only those papers that give an exact count and have been used by me; I am sure that the number would be greater if all scattered and occasional illustrations were included. Many of these illustrations are excellent, but some are too small to be effective and useful. I wish to call especial attention to the 305 figures of Melin (1923); the 384 figures in Seguy (1927); the 210 figures in Carrera (1949); the 284 figures of Engel in Lindner; besides the 352 text figures and 82 superb, colored, whole figures of the late H. C. Efflatoun (1937).

Every student of taxonomy builds on the work of others. I wish to pay especial tribute to the fine work of the late Dr. Stanley Bromley in the United States and to Dr. Friedrich Hermann in Germany. Hermann proposed 48 genera. Attention must also be called to the signal contribution of Melin (1923), whose monumental and painstaking work on the morphology of immature stages and the behavior of asilids is our best study on this aspect of these Diptera.

Relationships and Phylogeny

The study of ancestral relationships of the several families included among the Brachycera is filled with difficulty. As Cazier (1941) and others have pointed out, in any study of phylogeny it is essential that the most fundamental characters, those least likely to be affected by adaptive specializations, be utilized for understanding relationships. The author takes the view that when the relative value of the wings, the legs, the mouthparts, the antennae and the terminalia are considered, the wings and terminalia are least likely to be affected by adaptive changes. The terminalia, of course, do show some adaptive changes centering around both mating and egg deposition. Provided a wing has sufficient number of veins to support its resistance to air, it is not likely to change, except as a progression. The wing is, then, in many instances, likely to be a true indication of relationships. However, parallelisms arise also in wing venation. Comparison of fossil asilids shows how little change has taken place in wing venation. It is interesting that those families with the most constant activity and of larger size have the most veins in supporting the wing membrane. For example, Mydaidae may be quite large, and they undoubtedly are decadent, but they are agile and excellent fliers. The bombyliids and the asilids put even greater demands on their respective wings and their veins are stout, numerous and the wing rather well subdivided.

In searching for indications of common relationship, the dipterist cannot fail to be impressed by the general similarity of the wing of the rhagionid, the therevid, the tabanid and such lower members of the asilids as have all marginal, posterior, and anal cells open. The asilids, apioceratids, therevids, and mydaids appear to form a natural group. In this work, the Asilidae are considered to have a position off to themselves, but more closely related to the apioceratids than to the mydaids. The asilids are set apart by the presence of the simple, bristlelike empodium. In most of the other families of Brachycera, the pretarsus is characterized by a distinct, padlike, pulvilliform structure or arolium; rarely is a medial appendage of some kind wanting. Asilids seem to be an early and ancient offshoot from the common stock which gave rise to present day representatives of above mentioned families and which, at a still earlier time, diverged in another direction to produce the families of the Bombyliformia (Bombyliidae, Cyrtidae, Nemestrinidae).

One of the greatest gaps between the Nematocera and the Brachycera lies in the character of the palpus. Palpi of Nematocera are composed of three to five segments; palpi of Brachycera are composed of one or two segments. We have no Brachycera with three palpal segments. Following Williston, 1908, palpi are considered of great significance, and have been examined in each asilid genus. In the lower Dasypogoninae, in a few generalized types, there is a trace of the antepenultimate segment of the palpus. Williston, 1908, gives a summary of past systems of relationships.

Loew recognized three principal subfamilies of the Asilidae, the Dasypogoninae (*Leptogaster* Meigen included), the Laphriinae, and the Asilinae. Schiner (1868) proposed the subfamily Leptogastrinae. Loew emphasized the distinctions of the antennae and wings, and to some extent those of the head, legs, thoracic chaetotaxy, and terminalia. Williston (1908) considered the palpal differences to have more fundamental significance than the state of the marginal cell. Malloch (1928) and others pointed out the great diversity of antennal forms within each subfamily. Hermann (1920) made a useful subdivision of the Dasypogoninae into three major groups. His divisions, the Prytaninae, Eremocneminae, and Acanthocneminae, are based on the reduction in the number of visible abdominal segments, and on the presence or absence of the foretibial apical spine. Engel (1928) preserved this arrangement. Hermann's distinctions, while certainly significant, have the disadvantage of a poor choice of names, since none of them stem from names of genera. For this reason, and because additional tribes have been recognized, Hermann's subdivisions have not been used in this work.

Among recent schemes of classification, Carrera (1949) followed Hardy (1934) in recognizing only 2 subfamilies and placing the Laphriinae with the Dasypogoninae and the Leptogastrinae with the Asilinae. Bromley, Hermann, Engel, Williston, Melander, and Verrall have recognized 4 subfamilies and I believe on good basis. For a basis of recognizing Dasypogoninae, Asilinae and Leptogastrinae, we have fossil records; each of these groups goes back as far as the Miocene. The Asilinae extends into the Oligocene and Eocene. No fossil species of Laphriinae are yet known. It may be a relatively Recent subfamily. In the Laphriinae we find 77 genera and about 763 species, which occur in all the major world regions. The features shared in common by the Laphystini and the Laphriinae suggest that this subfamily arose from the ancient stock of that tribe.

Hardy (1948) placed dependence on the relative dissociation of the prosternum as a defining character for the higher categories. In some Asilidae the prosternum represents a single or paired, or paired and more or less fused sclerite which is completely isolated by membrane from the lateral propleuron. In others it is solidly fused with the lateral propleuron completely around the anterolateral border of the anterior coxa; this condition is described as a complete or undissociated prosternum. Clements (1951) has shown that there is great instability in the character of the prosternum within many groups of asilids. This character seems to have then, in brief, the same defect that the antenna has, in being too variable in this family. Because of the interest attached to it, I have given the condition of the prosternum considerable attention, and have examined its state in a wide variety of lower Brachycera and some Nematocera in an effort to decide which condition is the more generalized, the complete or the dissociated prosternum. Such a great variety of genera scattered throughout the order have the prosternum dissociated that one might be inclined, because of this very fact, to regard the isolated prosternum as the more primitive state for Diptera; but there are certain evidences which suggest that the reverse is true and which confirm Hardy's conclusion that the complete prosternum is the generalized condition. With a dissociated sternum surrounded by membrane, there is made possible a greater flexibility, but less strength because of reduced muscle attachment sclerites. Both conditions appear to be desiderata in a highly predatory group and it seems likely that adaptive factors have entered prominently into the state of the prosternum in various genera of the lower Brachycera. This may account for the lack of a trend in many groups toward the exclusion of the one type or the other.

Thus, I find that the following genera in other families have the prosternum fully dissociated: *Rhagio* Fabricius, *Dialysis* Walker, *Atherix* Meigen, *Chrysopilus* Macquart, *Symphoromyia* Frauenfeld, and *Coenomyia* Latreille. But in *Solva* Walker, on the contrary, the prosternum is complete, well developed, and fused. The prosternum is also dissociated in *Culex* Linné, *Tipula* Linné, *Exoprosopa* Macquart, *Eclimus* Loew, *Syrphus* Fabricius, *Milesia* Latreille, *Cochliomyia* Townsend, and likewise in all muscoids and higher Diptera which I have examined.

On the other hand the tabanids, stratiomyids, dolichopodids, therevids, and empidids, at least generally, have the prosternum fully developed and complete, although the first three families named above evidence in common a peculiarity which suggests a relationship and perhaps origin from common stock; this is the curiously broadened state of the prosternum, leaving the anterior coxae far apart. Of the therevids, there is a close resemblance between their prosternum and that of members of the Stichopogonini, where it is also fully fused and complete laterally. Moreover, therevids have a bristle-type empodium, which, together with venational similarities, suggests that they may not be far from the asilid line of ancestry.

As far as the general sequence of events with regard prosterna, I draw the following conclusions: 1, The complete prosternum is generalized and ancestral in asilids and probably in all Brachycera; 2, the need for strength of muscle attachment in asilids coping with vigorous, struggling prey has perhaps retarded the definite trend towards a breakdown of the prosternum; and 3, the prosternum is in process of being broken down in most if not all groups of asilids today, because of the premium on flexibility of the anterior subraptorial legs. This conclusion is strengthened by the fact that within the same genus the larger the asilid, of those asilids which have a reduced prosternum, the greater, proportionately, is the amount of membrane surrounding the prosternum. I further point to the condition in *Coenomyia* Latreille, illustrated in text-figure 1, which shows the prosternum at a point of just complete separation from the lateral propleuron.

As regards the conclusions to be drawn from the state of the prosternum with reference to the phylogeny of groups within the asilids themselves, one must proceed with caution, because of the widespread tendency within a family for suprageneric groups to proceed along parallel lines. The prosternum is most variable, at the present time, in the Asilinae, as observed by Clements (1951), but here again it appears to be complete in the more primitive elements, except that it is not clearly possible usually to point to definitely primitive genera. For instance, *Nerax*, new genus, might be regarded as specialized with respect to behavior of the veins at the apex of the wing, yet the arrangement of the anterior branch of the third vein, and the frequent vestiges of former connecting veins, complete in some related forms, represent a primitive trait. In determining the relationships of genera and groups of genera, the total picture of their development as it emerges from a study of the whole insect must be taken into consideration and I fully agree with Clements that the prosternum cannot be used, except in indicating the affinities of a genus. I have used it only once in this study to differentiate between genera, for instance, to separate the African Leptogastrinae genus *Ammophilomima* Enderlein, from the Asiatic *Lagynogaster* Hermann, and then only in connection with other characters. Broadly speaking, the character of the prosternum does help to define the tribes Laphystini and Atomosini because it is universally complete in these groups, or at most shows but slight emargination in the former tribe.

In this work the family Asilidae is subdivided into five subfamilies: Dasypogoninae, Megapodininae, Laphriinae, and Leptogastrinae, which we hold to consist of one interrelated group, and lastly, the Asilinae, which is considered to be somewhat more distantly related to the other four. In point of size in terms of species (the species count as given is approximate), the bulk of all Recent robber flies fall into the Dasypogoninae and Asilinae.

The Dasypogoninae contain about 1,837 species, whereas the Asilinae contain about 1,852 species. In the Megapodinae are 33 species, a few of which older names may be synonyms. The Leptogastrinae contain about 252 species, to which 24 others have been added by Martin, 1957. In the Laphriinae there are about 763 species.

The Dasypogoninae are here divided into the following tribal associations: Dioctrini with about 112 species, Phellini with 7 species, Chrysopogonini with 18 species, Damalini with 119 species, Stichopogonini with 141 species, Thereutrini with 7 species, Enigmomorphini with 1 species, Laphystini with 93 species, Stenopogonini with about 829 species, and the Dasypogonini with about 510 species.

The Laphriinae are divided into the tribes of Laphriini with 446 species, the Andrenosomini with 117 species, the Atomosini with 185 species, and the Ctenotini with 15 species.

I call further attention to the proportions within the Laphystini, where the genus *Laphystia* Loew has 42 percent of the species in this tribe. In the Damalini we find *Damalis* Fabricius in the Old World with 43 species and *Holcocephala* Jaennicke in the New World with 40 species. Collectively they total 69 percent of the tribe or about the same proportion as *Leptogaster* Meigen in its subfamily; divided they each total 33 percent and 35.8 percent of the totals within the tribe.

The Megapodinae in this work have been treated as a subfamily.

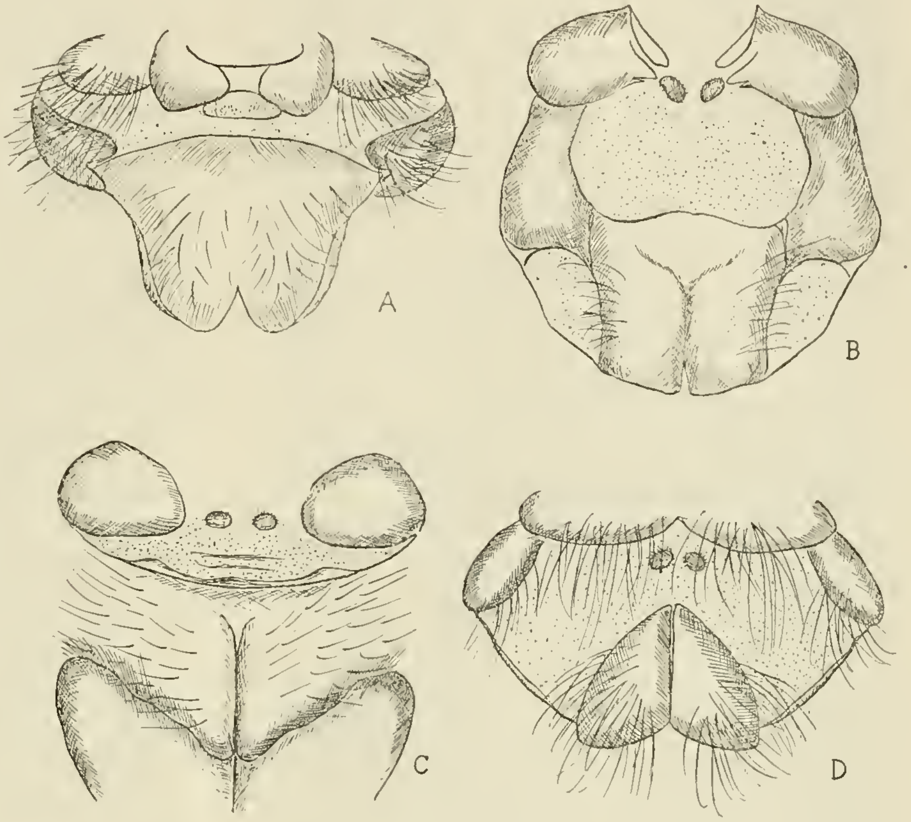
It is of interest to note that the large genus *Laphria* Meigen contains about 254 species or about 33 percent of the subfamily Laphriinae; and that in the tribe Atomosini, the large genus *Atomosia* Macquart contains 58 species or about 33 percent. Again, the tribe Andrenosomini contains the large genus *Andrenosoma* Rondani, which is about 37 percent of the species.

However, we find that in the subfamily Leptogastrinae with about 276 species there is a single, large genus *Leptogaster* Meigen with about 210 species or almost 76 percent of the total. It is not, however, surprising to find some genera of flies unusually large, as for example *Anopheles* Meigen, *Tabanus* Linné, *Limonia* Meigen, and it does not necessarily follow that they should be broken up into numerous genera and subgenera. Sometimes the recognition of well marked and distinct species groups serves just as useful a purpose and may more accurately reflect the true state of affairs.

The Asilinae are divided into the tribe Ommatini with approximately 187 species and the tribe Asilini with about 1,665 species.

In this work the Dasypogoninae, with their open, marginal cell and 2-segmented palpus, are regarded as the most generalized members of the family. Two other structures appear in some but not all members of this subfamily and are of considerable phylogenetic significance.

The first of these structures is the modification of the female ninth tergite into a pair of lateral, adjacent plates, the acanthophorites, together with their accompanying hemicircle of spines; this results in a characteristic type of ovipositor, which is restricted to the higher tribes of this subfamily only. Strictly analogous structures have appeared two or more times in the Asilinae, as in *Proctacanthus* Macquart, *Philodicus* Loew, but located on the tenth segment. Certainly the spiny outgrowths on the ninth tergite of the Phellini and also in some species of Chrysopogonini, both tribes of the lower Dasypogoninae, seem to be analogous rather than homologous, although there is a definite splitting of this tergite in *Psilozona* Ricardo into distinct acanthophorites.



Text-Figure 1.—The prosternum in asilids and in *Coenomyia* Latreille; stippled areas indicate membrane: a, *Coenomyia ferruginea* Scopoli. b, *Ommatius* sp. c, *Andrenosoma xanthocnema* Wiedemann. d, *Nerax concinnatus* Williston.

These spines on the acanthophorites are a character of special interest. There are similar structures on most if not all female Therevidae, on many Mydaidae, and on female Apioceratidae. Malloch (1928) has noted such structures present in some species of the anthomyid *Hylemya* Desvoidy and in the bombyliid genus *Comptosia* Macquart and the Anthracinae. Such structures in these families may be analogous to those of asilids. If so they are differently constructed and of independent origin. If these structures are not analogous, then these several families are closely related.

However, while these spines, when present in therevids and mydaids, certainly do seem remarkably similar to those of the Dasypogonini, I do not believe them to be homologous. For so clearly are they absent in some divisions of all three of these families that it does not seem that such groups represent a loss of such structures.

Also these spines and acanthophorites are lacking in the lower Dasypogoninae, the Laphriinae, the Megapodinae, the Leptogastrinae, and all the Asilinae, and in consequence I can not regard them as generalized structures. Rather they have the appearance of being adaptive specializations for the purpose of egg deposition and have appeared more than once in the Diptera. I do not believe that they have arisen more than once in the Dasypogoninae, except as crudely analogous types in the lower groups as above cited. Melin (1923) comments on the insertion of the egg in sand by the asilid *Lasiopogon* Loew and *Cyrtopogon* Loew. In common with several persons, I have followed the steps in oviposition in this family. In western Arkansas I have watched the asilid *Diogmites* Loew drill the egg hole in hard soil, insert the abdomen, deposit the egg and tamp the whole with the end of the abdomen and the outstretched spines. Melin (1923) says that *Philonicus* Loew in the Asilinae uses the spines as a sort of brush.

It will be noted that the larger the fly the larger and stouter the spines become; thus in small and weak flies like *Brachyrrhopala* Macquart and *Stichopogon* Loew they are slender and delicate. I attach no great significance to the supplementary setae that are present in some of these smaller genera, and in some therevids. They are found only in the smaller, weaker flies and are found laterally and ventrally to the spines. Perhaps they represent the type of bristle that has become modified into these so-called ovipositoral spines.

In summary, these five tribes of the Dasypogoninae—the Dioctrini, Phellini, Chrysopogonini, Damalini, and Laphystini—seem never to have acquired these ovipositoral spines, except rarely and always in an analogous form, and are here regarded as generalized Asilidae. Together these tribes comprise 28 percent of the Dasypogoninae genera.

The second important acquisition in the subfamily Dasypogoninae is the anterior tibial apical spine. This structure is not a true morphological spine, but is a stout, thickened or swollen bristle, which has become spinelike; it is appropriate to refer to it as a spine to avoid comparison with stout setae or bristles often present on these flies. However, in some genera it may be accompanied by or borne on a spinelike process or outgrowth from the apex of the tibia.

In at least the larger forms and possibly in all asilids which show it, this spine appears to be an adaptive mechanism, possibly useful as a small, raptorial clamp in holding struggling prey until the proboscis and its quieting juice can be inserted. These spines may have developed at a time when the salivary juices of the fly were less potent in their paralyzing and stupefying effect. This spine may be polyphyletic in origin. There are several distinct types as well as degrees of development. Once emerged, it is not uncommon to find three coincident types of adjacent and associated structures. The first is the extension of the base of the spine into a strong protuberance, reaching a maximum in *Molobratia* Hull (*Dasypogon* of authors). The second is the coincident appearance of opposing denticles on the base of the anterior basitarsus. These are frequently found but may be quite absent. The third type is the swelling of the basitarsus, with or without denticles, into a conspicuous flange or mound, reaching a peak in *Neolaparus* Williston, *Megapoda* Macquart, and allies.

Because the foretibial spine itself is of several types, as well as in several stages of development, it has been criticized as a distinguishing character. The following major types of such spines are recognizable: First, the slender, twisted or sigmoid spine as is found in *Cophura* Osten Sacken and its allies; it has little and sometimes no corresponding basitarsal development. The second type is the stout, well developed spine with at least a moundlike, denticulate, basitarsal swelling. The third type is a stout, straight spine attached to a strong protuberance which extends beyond the tibial apex with correspondingly exaggerated basitarsal process as above cited. These second and third types may represent continued specialization from the same stock as *Cophura* Osten Sacken, the cophuroid genera possibly having arisen from ancestral forms, which have been retarded; or at least arisen from those which have retained a generalized form of the spine. Another view is that these several types of spines in the Dasypogonini represent separate polyphyletic or analogous developments of the foretibial spine.

Thus far I have had reference to the several types of anterior tibial spine only as seen within the tribe Dasypogonini. I have relegated *Codula* Macquart to the Chrysopogonini on account of its notopleural spine. Members of this genus lack completely any trace of the tibial spine, from which I conclude that the other genera in the tribe acquired the tibial spine independently. Again, *Leptarthrus* Stephens, with a small, bent, tibial spine and no trace of ovipositoral spines has been assigned to the Dioctrini. Here again it is believed that these two exceptions may possibly represent parallel acquisitions of the tibial spine. If this is true we may consider that the tibial spine has arisen three or more times in the Dasypogoninae, and once in the Megapodinae.

In this study the Dasypogoninae are divided into ten tribes. The Dioctrini, with all cells of the wing generally open and with a trace of the antepenultimate palpal segment, is placed lowest, and followed by the Phellini, the Chrysopogonini, the Damalini, and the Laphystini. The Stichopogonini are considered nearest the Dasypogonini. The spined and not spined genera of the higher Dasypogoninae have been separated into the Dasypogonini and the Stenopogonini.

I reject the tribal name Saropogonini used by some authors and based on the spined, front tibia, because the name should be Dasypogonini. Some but rather less than half of the unspined Stenopogonini can be separated in the male sex by the not rotate terminalia.

In any case, the presence or absence of the spine is extremely useful in classification. *Megapoda* Macquart and its allies have been raised in this study from tribal status to subfamily rank. I am inclined to regard the Laphystini as the highest of the not spined Dasypogoninae, because of their reduction in the segments of the abdomen, but it is possible that the Damalini are more specialized. They are also a very successful group, and, together with the Stichopogonini, they dominate such habitats as sandy shores and mud flats. In the higher Dasypogoninae, some 75 genera lack foretibial spines, while approximately 50 genera have acquired them.

The principal line of cleavage in the Laphriinae has to do with the chitinization of a medially fused and complete postmetacoxal arch. It separates the Atomosini from the Laphriini and also the Andrenosomini with the exception, that in some species of *Proagonistes* Loew there is a medial seam on the arch. The Andrenosomini, with eleven genera, are regarded as an offshoot from the Laphriini, as are likewise the Ctenotini.

Except for the Ommatini, the Asilinae have not been subdivided. The Asilinae segregate comparatively well into those genera in which the anterior branch of the third vein lies above the wing apex and those where it falls below. The first group is filled with such diverse types as *Promachus* Loew, *Proctacanthus* Macquart, and *Polysarca* Schiner. The second group is even more variable, so I have decided to leave them all in one group. The Asilinae, if they include the more ancient known fossils, are also the most successful present day forms, dominating as they do fields and grasslands. Powerful, active and aggressive, these larger forms are matched in ferocity only by the species of *Microstylum* Macquart in the Dasypogoninae. The larger asilids do not hesitate to defend themselves when captured by the collector and the unwary will be quickly and viciously bitten by them.

The palpus has been reduced from two segments to one in at least five groups—the Asilinae, Leptogastrinae, the Megapodinae, in *Enigmomorpheus* Hermann, and in the Ctenotini. The marginal cell has become closed five times in this family—in the Asilinae, some Laphystini, all Laphriinae, most Megapodinae, and in all Thereutrini.

It seems apparent that the Asilidae are better developed today, both in point of genera and species than in the early or middle Tertiary. Compared with the family Syrphidae, we find that today the Asilidae has about the same number of species, though a great many more genera and curiously more subgenera. But there are almost certainly many more species of asilids undescribed than there are of syrphids. Known fossil species of Asilidae total 39, whereas the syrphid fossil species number 75, and of this number, 30 are from the Baltic amber, against only 4 asilids from Baltic amber. However, the habits of asilids are perhaps not such that amber would make a likely trap for these flies. If the amber fossil syrphids are subtracted from the number of known fossils in this group, there still remain 45 syrphids from rock or shale formations compared with 35 asilids from similar formations.

In each of the larger subfamilies of the Asilidae there appears to be at least one or more actively differentiating or evolving groups. For the Dasypogoninae this would seem to be the Laphystini, the genus *Cophura* Osten Sacken with its related genera and the genus *Microstylum* Macquart with its related genera. For the Laphriinae, the presently best developed group would be the Atomosini; for the Asilinae, the *Nerax*, new genus, group of species and genera and perhaps *Promachus* Loew.

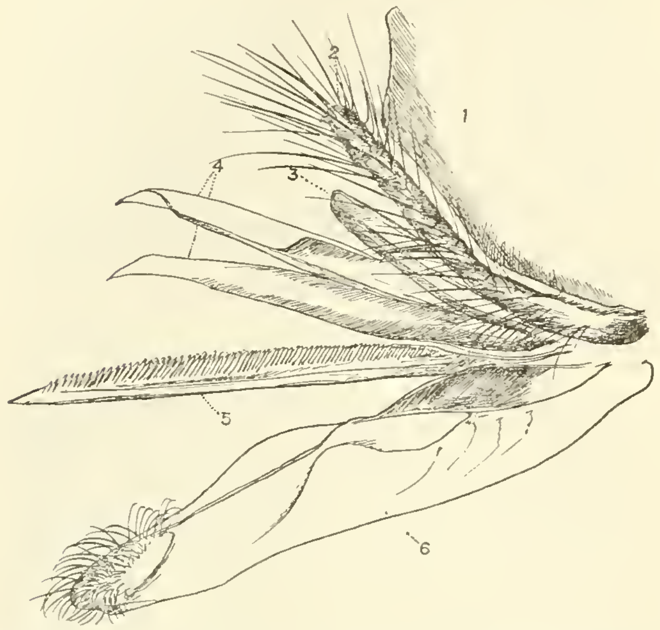
Several trends in the family appear to have resulted in well marked phylogeronts. One of these is giantism, which appears several times in the family, in *Phellus* Walker and in some species of *Microstylum* Macquart. Clumsiness, as well as giantism, is apparent in some species of *Bombomima* Enderlein, and they have become about as robust laterally as they can well be, and some of these lay very large eggs, with consequent reduction in number, though admittedly the hazards for initially large larva may be less, as far as our present knowledge goes. If, as some believe, these larva are predatory, this too may well be a limiting factor in these species. I believe we must regard *Phellus* Walker species, *Obelophorus* Schiner, *Dasylechia* Williston as phylogeronts; perhaps too, all or most of the Megapodinae are such. Dwarfism appears in the Stichopogonini, as well as in some minute and fragile species of the Leptogastrinae and Atomosini. There are some parallel developments as in species of both *Acronyches* Hermann and *Systellogaster* Hermann, which resemble flies of other families. One species of *Acronyches* Hermann has the milky wing apex seen among the Syrphidae, in similarly petiolate species of Microdontinae and Cerioidinae, and in wasps. Most remarkable is the genus *Eurhabdus* Aldrich with the threadlike abdomen, long-stalked halteres and wing reduced in the basal half to a mere stalk.

Morphology

The robber flies are characteristically large, active, aggressive flies, which tend to have bristly vestiture, a short thorax and a stout, yet tapered abdomen. The abdomen, in contrast to therevids, tabanids, nemestrinids and bombyliids, is always reduced in girth at the point of attachment to the thorax. This latter condition is probably connected with the hovering habit present in all four of these other families, and possibly in several of them is associated with air sacs. Asilids are able to hover but do so uncommonly. The robber flies are very efficient predators. They either pounce on their prey or capture it in flight with great agility. Surely the unusual development of the legs, so often stout and swollen and beset with strong bristles, is connected with this predatory habit. The eyes are prominent and well developed, without exception widely dichoptic in both sexes, and the front of equal width in both. In a few Leptogastrinae the eyes may virtually meet beneath the antenna. This is the general picture of the family, but with so many genera and species there are numerous exceptions. Some asilids are weak flies with few bristles and delicate in body.

The head in most asilids is of medium length. In a few instances, especially in some Damalini, it is shortened, the eye being high, short, and flattened. The postocular occiput or that part which shows behind the eye profile is generally prominent and sometimes especially well developed. Occasionally the upper occiput is obliterated by the posterior development of the eye, but the great uniform expansion of the eye with concave, posterior occiput, such as in tabanids, some bombyliids, and nemestrinids is never found. While it is usually stated that the vertex is strongly and characteristically excavated, there are a few exceptions: In *Ancylorrhynchus* Latreille it may be quite plane; in Damalini the enlarged and flattened eyes are greatly raised above the vertex and in this group and in some Laphriinae, such as *Cerotainia* Schiner and *Rhopalogaster* Macquart, the upper occiput and vertex are posteriorly flared and excavated.

The face of Asilidae is well filled and is in contrast to the sunken, excavated face of rhagionids and therevids. It is without the deep and conspicuous lateral punctures and creases of the mydaids and some tabanids. The vertical, lateral face grooves in the Asilidae are best developed in the Damalini and in *Plesiomma* Macquart. There is frequently a well developed tubercle or gibbosity over the whole or lower part of the face and a marked tendency toward stout, long, conspicuous bristles above the epistoma. These bristles are often called the mystax. The antenna is generally placed a little above the middle of the head, and in Dioctrini and *Erythropogon* White it is placed high above the middle of the head, thus shortening the front. Three antennal segments are present and in the majority of genera there is at least one terminal microsegment, small or large, and sometimes there are two well developed microsegments, in addition to a terminal spine, or bristle, which may be likened to annuli. The end segment often has such a spine or bristle present apically or subapically. In the Asilidae and some others the third segment bears a long, stout bristlelike terminal style or arista.

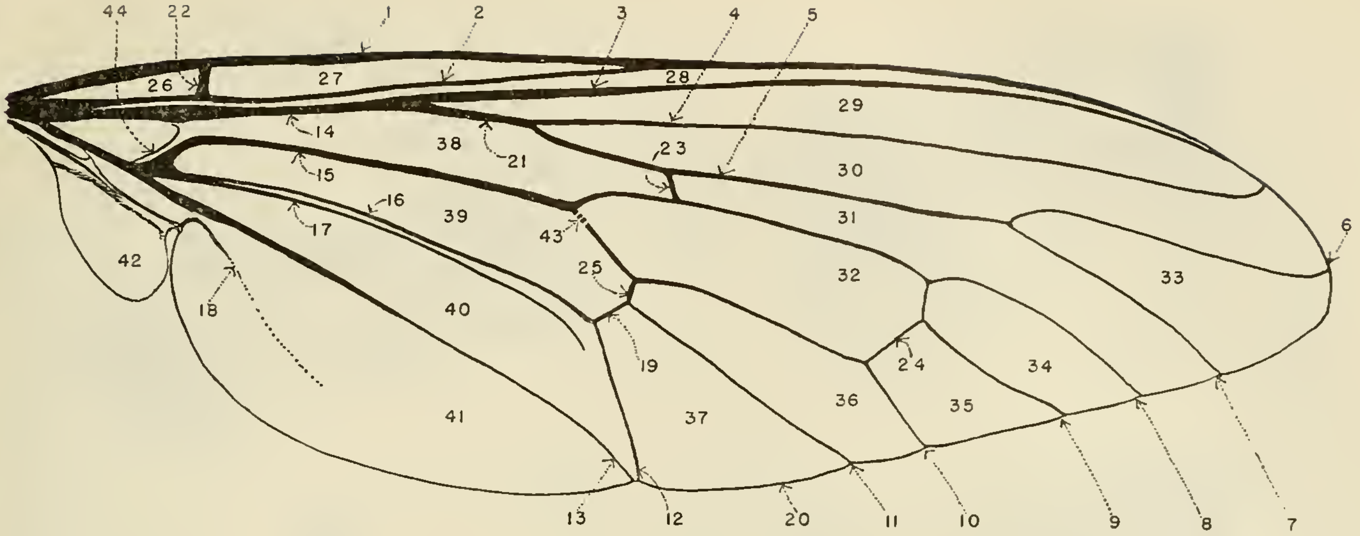


Text-Figure 2.—The mouth parts of asilids, as illustrated by *Nerax interruptus* Macquart. Explanation: 1, the epistoma. 2, maxillary palpus. 3, the labrum. 4, the maxillae. 5, the hypopharynx. 6, the labium.

Both front and ocellarium usually bear bristles and their position and number are of some value in classification. A single ocellar pair may become prominent to the exclusion of others, or there may be only stiff pile present. The subepistomal area is the clypeus; it is usually distinct from the face. Characteristically, the proboscis is straight and usually longer than the head, that is, it extends beyond the anterior boundry of the face, but may be reduced, minute, and short in the tribe Atomosini. In *Ancylorrhynchus* Latreille its shape is very peculiar, blunt, short, stout, and directed downward and backward. In others the direction of the proboscis is often characteristic, being held horizontally forward and the presence of a high, dorsal keel is noted in some genera. Again, the apex may be cylindrical, bifid, depressed dorsoventrally or laterally compressed. Hansen (1883) and Melin (1923) give the anatomy of the mouth in detail. The proboscis consists of a stout, usually cylindroid labium, which forms a tube or cylinder that is open and slitlike dorsomedially and holds within it the paired, thin-blade, curved maxilla and the unpaired tubular, bristle-beset hypopharynx, the interior of which forms the food canal. Piercing of the prey is done with the hypopharynx and enters the prey at the sharp apex. Above these structures, situated dorsally and chiefly toward the base lies the epipharynx (labrum-epipharynx). This is the structure, which constitutes the middorsal keel of the proboscis. The mandibles are quite rudimentary or absent.

The maxillary palpus lies at the base beside the labium. It is of great significance in the classification of these flies, and in the higher asilids it is reduced to a single segment. In some of the lower forms, there are traces of a third segment. It is interesting to note that in all except the more generalized species the basal segment is hemicylindroid, that is, it forms a hollow hemicylinder, or shell, and various stages of partial fusion of this segment to the lower gena are noticeable. Again, the terminal segment in certain groups is perforate at the apex, the opening may be quite large. In *Brachyrrhopala* Macquart and allies this end segment is swollen and clavate, with one flattened surface, and resembles the rhagionid palpus.

The thorax is stout and the sclerites strong and thick. Generally, stout macrochaetae are present and are often conspicuous, long, and numerous. They are most useful in classification. The pronotum may be short, without anterior ridge, or if such ridge is present, there is a furrowlike depression between and the anterior ridge bears the macrochaetae. Prosternum in the lower forms generally dissociated from the lateral propleuron, but fused in many asilids. The mesonotum is gently curved before and behind, usually more abruptly anteriorly and in some cases is as greatly raised and humpbacked as in some empidids. Metathorax small and reduced, but elements lie above as well as below. The ventral

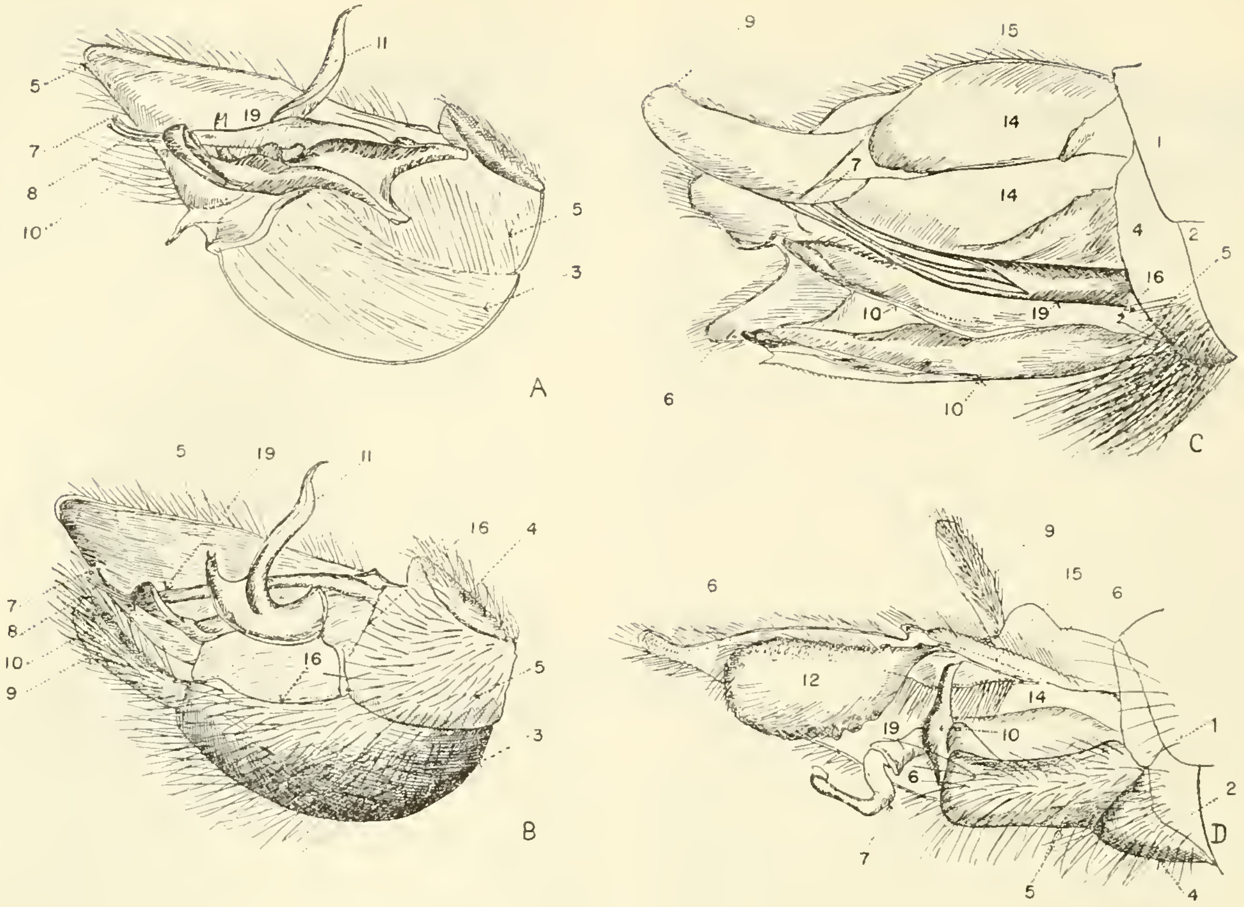


Text-Figure 3.—The wing of a generalized Recent asilid, *Ceraturgus cruciatus* Say. Explanation: Costa. 2, Subcosta or auxiliary vein. 3, First branch of the radius, or first longitudinal vein (R$_1$). 4, Second longitudinal vein (R$_2$ and R$_3$). 5, Third longitudinal vein (R$_4$ and R$_5$). 6, Anterior branch of third vein (R$_1$). 7, Posterior branch of third vein (R$_5$). 8, First branch of medius or fourth vein (M$_1$). 9, Second branch of fourth vein or anterior intercalary vein (M$_2$). 10, Third branch of fourth vein, or posterior intercalary vein (M$_3$). 11, First branch of cubitus, or fifth vein (Cu$_1$). 12, Second branch of fifth vein (Cu$_2$). 13, Second anal vein. 14, Main stem of the radius (R). 15, Main stem of the medius (M). 16, Main stem of the cubitus (Cu). 17, First anal vein. 18, Remnant of third anal vein. 19, Anterior branch of cubitus. 20, Ambient vein. 21, Radial sector. 22, Humeral crossvein. 23, Anterior, small or middle crossvein. 24, Posterior or medial crossvein (m). 25, Discal or mediocubital crossvein. 26, First or basal costal cell. 27, Costal cell. 28, Subcostal or mediastinal cell. 29, Marginal cell (R$_1$). 30, First submarginal cell (R$_2$ and R$_3$). 31, First posterior cell. 32, Discal cell (1st M$_2$). 33, Second submarginal cell. 34, Second posterior cell. 35, Third posterior cell. 36, Fourth posterior cell. 37, Fifth posterior cell. 38, First basal cell. 39, Second basal cell. 40, Third basal, anal or lower basal cell. 41, Axillary cell, anal angle (A$_2$). 42, Alula, axillary or posterior lobe. 43, Thyridium. 44, Arculus.

metasternum may be wholly membranous, thinly chitinized, or more rarely forming a stout, thick arch of chitin.

The legs are almost always stout, often swollen and frequently bear numerous, stout bristles. These conditions are connected with the active, predatory habits and the need to hold a struggling prey. As Lundbeck (1908) has so well commented, the bristles are of several different categories. They may be stout throughout, or stout basally, becoming fairly attenuate distally; or in many cases, they are so weak as to render it difficult to decide if they are truly bristles or only bristly, stiffened hairs. All tibiae at their apices have several, stout, spinelike bristles. The cluster may contain as many as 10 or 12 on the hind tibial apex or as few as 5 or 6 bristles. The anterior tibial apex may have a single bristle, which in the course of evolution has thickened into a prominent spine. Its accompanying modifications have been discussed above. The pretarsus ends in pulvilli, sometimes reduced or even absent, and a bristlelike empodium of several forms and variable length, wanting in only one or two Leptogastrinae genera. Claws may be sharp, or blunt, curved or flattened and apically bent; in not pulvillate forms, they become more slender, always finely attenuate and convergent; rarely the lateral claw is shortened.

With few exceptions, the wings have a complete ambient vein, rarely entirely absent (*Nusa* Walker). The radius is 4-branched always, with sometimes a recurrent spur extending back from the anterior branch of the third vein near the base of this branch. This spur vein is sometimes complete; that is, it unites with the second vein and in *Mallophora* Macquart and several other genera it simulates a crossvein. It is really equivalent to the posterior branch of the second vein (third branch of radius), which has become lost, and a spur vein, when present, constitutes a vestige of this last vein. The medius has 3 branches, the cubitus has 2 branches and the anal cell open or closed and petiolate. In the most generalized condition, the marginal and all posterior and anal cells are open. This condition is seen only in the lower Dasypogoninae and the Leptogastrinae. In many forms, the marginal cell is closed; one and sometimes two posterior cells and the anal cell may be closed or a total of four closed altogether. In one instance the submarginal cell is closed. Rarely, the posterior cells may be reduced to four cells; in one instance it is reduced to three cells; the alula is absent in Leptogastrinae and in a few other genera likewise.



Text-Figure 4.—a–b, *Bombomima fulvithorax* Fabricius: a, deep dissection with right clasper and pseudoclasper removed; b, with gonopod removed. c, *Nerax interruptus* Macquart, with superior forceps and gonopod removed. d, *Neoaratus* sp., with superior forceps removed, revealing paralobus and clasper.

The asilid abdomen typically has eight well developed tergites in the males and females, those beyond being incorporated within the terminalia or the ovipositor. In the female Asilinae, if the proctiger be counted, ten segments can be discovered, but in other subfamilies sometimes fewer. In one tribe and subfamily the preabdomen is reduced to six visible segments. Macrochaetae, with few exceptions, are present on the sides of the first tergite. They are more rarely present on remaining tergites, still more uncommonly on sternites. In a few asilids the abdomen departs from the usual stout and tapered, cylindroid form to become wide and greatly flattened (*Blepharotes* Westwood) or wide and stout and robust (*Hyperechia* Schiner, *Laphria* Meigen). Rarely are asilids petiolate. A few have long, very slender bodies, as in the sluggish Leptogastrinae. The first sternite may be subdivided into two or more bands of thin chitin.

In the Asilidae the male terminalia are complex and, as is true of so many Diptera, quite variable. Since there is still much confusion of terms in dealing with these structures, I shall define below the terms I have adopted in this work. I have consulted both Crampton (1942) and Cole (1927), but I have relied chiefly on the terminology employed by Emden and Hennig (1956).

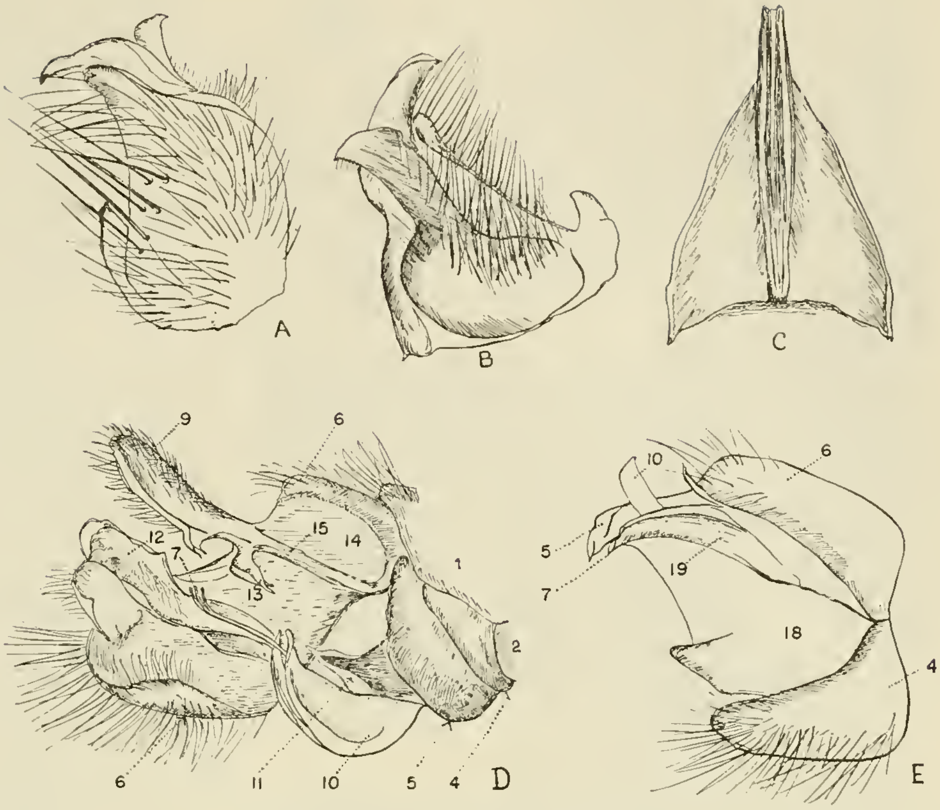
The genitalia of the asilids and Diptera in general comprise the ninth abdominal segment with marked modifications in consequence of its function. The tergal component is referred to as the epandrium, except where it is furcate, in which case it is here styled the superior forceps; this structure bears the proctiger at its apex medially, a structure called by some authors the lamellae and called by others the cerci, with due recognition, perhaps, to the eleventh segment origin of the true cerci. The proctiger, as found in the Asilidae, may possibly represent parts of both tenth and eleventh segment (telson) elements; partly paired as it often is by reason of a dorsal, lineal fissure, it represents a small, tubular passageway.

On the ninth segment, the ventral or sternal element or hypandrium, is usually present and is often extraordinarily prominent; however, it is greatly reduced in some genera and may be virtually or completely lacking, as in *Clephydroneura* Becker; on the other hand it is extended dorsally in *Bathypogon* Loew and even fused to the epandrial element, from which the supe-

Explanation,

Text-Figures 4 and 5

1, Eighth tergite.
2, Eighth sternite.
3, Epandrium.
4, Hypandrium.
5, Gonopod.
6, Superior forceps.
7, Aedeagus.
8, Penis guides (or sheath).
9, Proctiger.
10, Clasper.
11, Pseudoclasper.
12, Paralobus.
13, Hamate process.
14, Cavity of superior forceps.
15, Cut edge of superior forceps.
16, Cut edge of gonopod.
17, Aedeagus sheath.
18, Cavity of gonopod.
19, Penis sheath.



Text-Figure 5.—a–c, e, *Diogmites platypterus* Loew: a, exterior view of gonopod with processes; b, medial view of gonopod with processes; c, aedeagus and sheath from ventral aspect; e, lateral aspect with true right gonopod and whole proctiger removed. d, *Astochia* sp., the superior forceps removed.

rior forceps do not begin until some distance from the base of the segment.

Between the superior forceps (epandrium) and the ninth sternite, there is usually a well developed, paired, lateral organ somewhat shorter than the epandrium and attached to or borne by the ninth sternite. This is the inferior forceps of Oldroyd (1938), and to avoid the additional use of the word forceps, I have uniformly called this structure the gonopod, since it is borne dorsally from the hypandrium. This lateral structure appears to be equivalent to the gonopods of authors. Beyond this point the confusion with regard to the characteristic, distal processes so often seen in the Asilidae grows greater, and since clear evidence of segmental character is wanting, I have rejected the use of the terms styli or surstyli for these processes. It will be noted that the lateral gonopod often bears a medial, more or less upright, arched and sublamellate process tending to enclose the aedeagus (distiphallus); I have followed Oldroyd (1938) and others in calling this lateral and medial appendage the clasper, when it is clearly borne by the gonopod. This structure, the gonopod, when present tends to enclose the penis guides when these are present, which in turn encloses the aedeagus. However, the clasper is sometimes either lacking or greatly reduced. Again, the clasper may be double, with four structures in two pairs (two on each side) of nearly equal prominence and each arising, as in *Astochia* Becker, from the medial base of the gonopod. The outermost of these structures are here called pseudoclaspers. There may be a similar structure arising rarely from the inner wall of the superior forceps as in *Oligoschema* Becker, *sensu stricto*, and I call this the paralobus. The accompanying text-figures 4 and 5 show graduated dissections in lateral aspect of a representative of each subfamily.

Attention should be called to the rotation or inversion of the male terminalia. A considerable literature has arisen on the controversial subject of the mechanics and mode of inversion. Those interested in the subject are referred to Lamb (1922a). Rotation usually takes place during copulation in the Dasypogoninae, but the terminalia are permanently rotate 180 degrees in the subfamily Laphriinae. In Asilinae and Leptogastrinae they are not rotate at all and the superior forceps and accompanying proctiger are always dorsal in position. Since in Dasypogoninae the rotation occurs while in copulation, these parts tend to return to a variable extent to the dorsal position and in the dried cabinet specimens they are usually found in partial and sometimes complete inversion. Probably, in many Dasypogoninae there is permanent rotation, if judgment can be formed from dried material. In the Dasypogoninae, except the *Stenopogon* Loew group of genera, this male character cannot be used with complete confidence because of its variability, nor can it be linked as an associated character with the female character of the spiny acanthophorites in the tribe Dasypogonini. Some of the members of the tribe Dasypogonini are not rotate, such as *Stenopogon* Loew and *Bathypogon* Loew.

In the lower Dasypogoninae the female terminalia are simple and begin with the ninth segment. If there are fewer segments in the preabdomen than eight, the apparently missing segments can still be found, shortened, and concealed or partially hidden beneath the last visible segment. In the Dasypogonini and Stichopogonini, the ninth female tergite is subdivided into two lateral plates, the acanthophorites, leaving on each side a quarter-circlet of stout spines which are sharp, blunt or spoon-shaped, and usually consisting of five or more pairs. In the lower Dasypogoninae, as *Phellus* Walker and *Dioctria* Meigen, and in all the Asilinae this tergite is undivided.

Immature Stages

The eggs of asilids vary both in size and shape. They range from very short oval as in *Leptogaster* Meigen, and *Bombomima* Enderlein, to medium oval in the case of *Laphria* Meigen, in which the length of the egg may be twice the width. Melin (1923) figures 14 asilid eggs and states that the eggs of *Laphria* are reddish brown and shiny. The egg he shows of *Eutolmus rufibarbis* is nearly four times as long as wide. Eggs of one large species of *Bombomima* Enderlein are very large, purple in color and short oval.

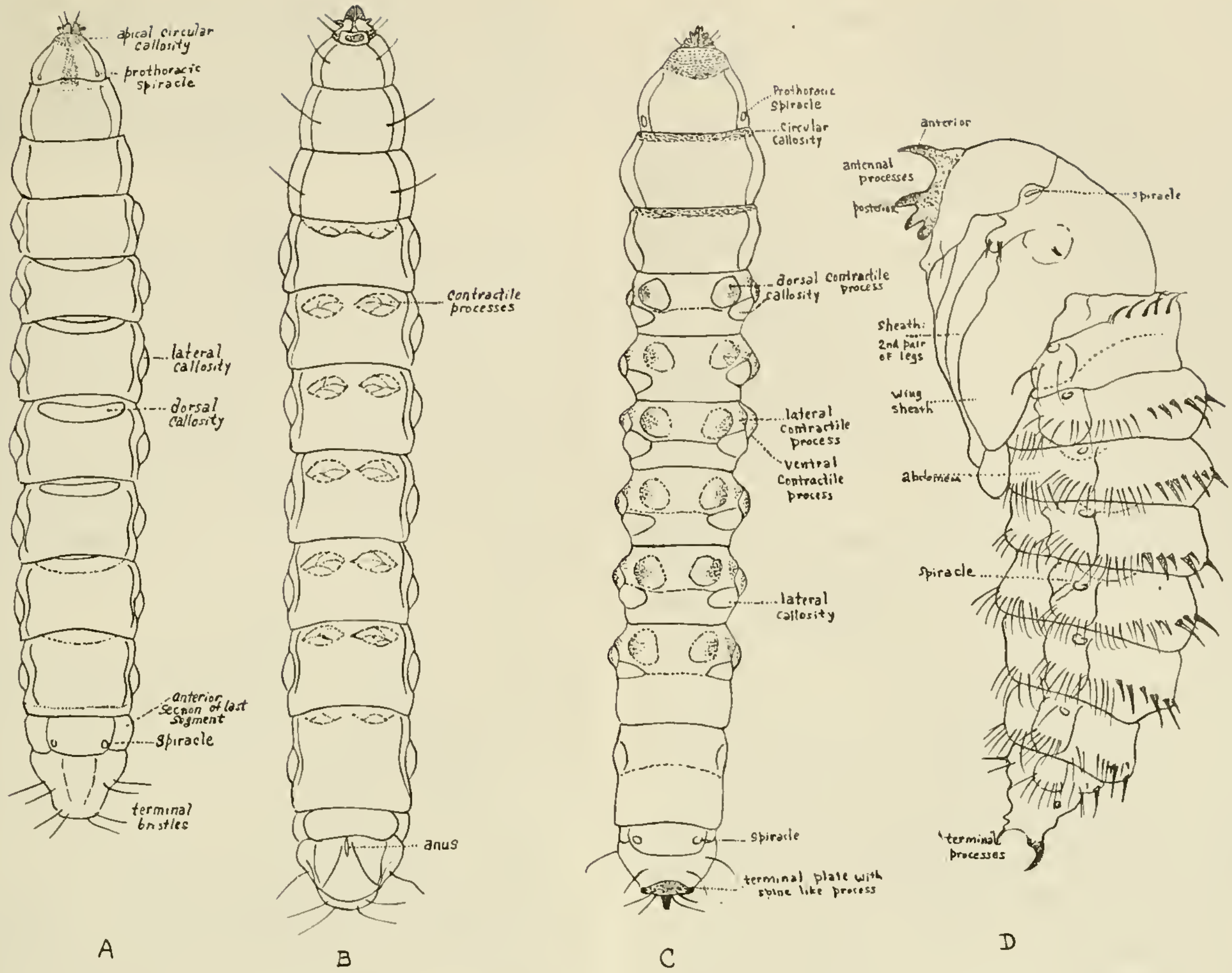
Larvae of Asilidae are elongate, tapered at each apex. They tend to be shiny, sometimes furrowed, or with fine stria and with or without dorsal callosities. They possess a clear, distinct head with eleven body segments, which often have rows of minute pores. The terminal segment is divided. The principal spiracles consist of a pair on the prothorax and a pair on the anterior abdominal segment, for which reason they have been regarded in all older writings as amphipneustic. Green (1918) found a pair of minute, possibly not functional spiracles on the metathorax, and a pair on the remaining, abdominal segments. The penultimate abdominal segment is shorter than the ultimate, distinguishing them from the mydaids, but like them the body is held straight; hairs of ultimate segment not closely approximated as in mydaids. In text-figure 6 several typical larvae are shown, after Melin (1923), to whom the interested student is referred for his fine, detailed studies and figures.

Asilid pupae are of the free and mobile type. Antennal sheaths are present, sometimes divergent, situated close to the medial part of eyes. Melin (1923) designates the distinct, thornlike processes, which are found at the base on the one hand, and the distal part of the sheath on the other, as the anterior and posterior processes. Posterior processes generally have three to five teeth. Melin (1923) and Green (1918) both consider that the abdomen consists of 8 segments. Dorsally the segments are provided with a unilinear girdle of spines, which Melin finds change over laterally into bristles, and which Brues and Melander (1932) find alternate as long and short spines. Eight spiracles are generally present.

More than fifty authors have dealt with the egg, larva, or pupa of Asilidae. As Melin (1923) has pointed out, most of the descriptive and illustrative material, excepting that produced by Malloch (1917) and by Greene (1918), is without comparative value as it goes into entirely too little detail. Many of the observations made on the supposed feeding habits of larvae is of a presumptive or circumstantial character. Melin in his own work states that he had almost a thousand larvae representing many species and not a few genera. Altogether about 50 species have been treated in literature, distributed approximately as follows: Dasypogoninae with 5 genera and 13 species; Asilinae with 17 genera, and 27 species; Laphriinae with 5 genera and 9 species; Leptogastrinae with 2 genera and 4 species. Seguy (1932) illustrated a number of larvae and pupae, many from Melin (1923). The bibliographies of Melin (1923), Irwin-Smith (1923), and Henning (1952), should be consulted by those interested in these stages.

Ecological Relationships

The majority of species of Asilidae frequent dry and sandy areas, a condition well shown by the greater numbers of species found in arid and semiarid regions; but even in desert or semidesert country the small drains of dry steam beds attract the greatest number, and sometimes the entire robber fly population of a region will be restricted to such places, which also have the maximum vegetation and the greatest population of insects upon which the flies feed. In such country one may often look in vain for Asilidae beyond the banks of the stream bed. In temperate regions a few species occur in wet swamp areas and deep forests. As Bromley (1946) has pointed out, the number of species which occur deep within woods is limited, and these flies tend definitely to concentrate on the edges of woodlands, where shrubs occur and give way to grassland. I spent several weeks at the Canal Zone Biological Area of the Smithsonian Institution, on Barro Colorado Island in Gatun Lake. There in the rain forest never was an Asilid seen within the forest, but several species occurred among the high grass along the edge of clearings. There are species which prefer grasslands, and the plains also have their representatives. Next to semidesert areas, probably savannah country attracts the greatest number. It is said


apical circular callosity
prothoracic spiracle
lateral callosity
dorsal callosity
anterior section of last segment
spiracle
terminal bristles
A
contractile processes
anus
B
Prothoracic spiracle
Circular callosity
dorsal callosity
Contractile process
lateral contractile process
ventral contractile process
lateral callosity
spiracle
terminal plate with spine like process
C
anterior
antennal processes
posterior
spiracle
Sheath: 2nd pair of legs
wing sheath
abdomen
spiracle
terminal processes
D

Text-Figure 6.—The immature stages of Asilidae (after Melin, 1923): a, Larva of *Machimus atricapillus* Fallen. b, Larva of *Dysmachus picipes* Meigen (as *forcipula* Zeller). c, Larva of *Choerades gilva* Linné. d, Pupa of *Machimus atricapillus* Fallen.

that about 500 or more species occur in California; this may be attributed to the very diverse habitats and climates, of the State and to its length.

Robber flies begin to move several hours after sun up and are occasionally active until sunset. Generally speaking, they are most active from 10 in the morning until 2 in the afternoon and are strongly affected by hot, bright sunshine. A few species have short lives of but a week or ten days; aggregates of other species may live for six months. In the southern United States *Nerax interruptus* Macquart, a ubiquitous species, appears early in June and lasts until November or later, depending on the appearance and severity of frosts. This species is called by the southern negroes, who are country-living, by the peculiar folk name "louanners."

It is surprising how limited the population may be in some species of Asilidae. A population of 50 or more individuals of a species in an area of limited extent may be found, and it may be a very considerable, even remote distance to other populations. I recall finding a population of *Asilus rubicundus* Bromley in a hilltop plot of field grass beside a highway. There were scattered patches of woods and fields totaling hundreds of acres, but these flies were centered in a small area of not more than one-half acre and in a 3-day period I netted 152 individuals. It was estimated that 20 more remained. A search the same days in a number of similar areas, including those where formerly the species was located; failed to reveal others. Two days of collecting once yielded over 100 individuals of the very large *Proctacanthus milberti* Wiedemann from two acres bordering a swamp, and other individuals remained. Similar isolation of populations was noted by me in Australia. On the other hand, there are species and genera and tribes which are particularly abundant and can be found at most any time and place within the geographic range and proper habitat. Many asilids frequent the bark of trees or logs, drift wood, mud flats or the twig tips of small trees and shrubs. Some are restricted to pine forests, a not surprising fact in view of the extensive, evergreen forest of the northern hemisphere. James (1938) gives a good discussion of asilid habitat preferences for the State of Colorado.

It is well known that these flies have certain resting or observation sites and greatly preferred ones. I recently made use of such a post to capture a series of *Atomosia puella* Wiedemann. The site was the black trunk of a wild-cherry tree some 50 yards from a house, and with other trees nearby. Over a 2-week period I found from three to six flies on that part of the tree trunk directly in the sunlight and extending from a foot above ground to some seven or eight feet above. As fast as the immediate population was captured, others within the space of a few hours would move in from an unknown source; 54 flies were caught there. These flies were not present on nearby trees or outbuildings. Melin (1923) records an instance of what he considered the ability of a robber fly to modify an instinctive behavior pattern to suit circumstances.

We do not know the limiting factors in population size in asilids. Lack of available insect prey, as far as the adult insects are concerned, is perhaps infrequently, maybe never, a factor. It is possible that the larvae, about which we know little, may find food scarcity a limiting factor. A rather strong contributing factor may be inept behavior or low ability of the individuals in some genera to capture prey. Melin (1923) and Efflatoun (1937) both comment interestingly on the numerous, unsuccessful attempts of genera such as *Epitriptus* Loew and *Cerdistus* Loew, to capture prey.

Melin (1923) describes the mating habits of a number of species in this family. He found that prenuptial behavior is rather limited and this coincides with my own observations. I once watched *Promachus bastardi* Macquart hover behind a female selectively for a brief period before mating. The most highly developed courtship reported in the family is the species *Heteropogon lautus* Loew, as described by Bromley (1933), and of species of *Cyrtopogon* Loew, as reported by Wilcox (1936). In the species of *Heteropogon* Loew the front tarsus is decorated, and many of the American species of *Cyrtopogon* Loew, in contrast to European species, have elaborate, tarsal ornaments. Waving of the ornamented tarsi, accompanied by wing movement and at times a low buzzing sound are the chief movements, says Wilcox (1936d), who adds that the process may be accompanied by the male lashing the abdomen or striking the head and thorax of the female with the forelegs. When mated, pairs often fly without uncopulating, in which case the female usually takes the lead in flight, the male with vibrating wings, but facing the opposite way. The hum of mated couples in flight is of a distinctly lower pitch.

Most robber flies emit a characteristic hum, sometimes of low, sometimes of high pitch, according to the size and character of the species. Many species are exceptionally wary; of none is this more true than the giant Australian species of *Phellus* Walker, which are difficult to catch.

The recorded enemies of asilids consist of spiders, according to Bromley (1914), and wasps are recorded as enemies of asilids by both Bromley and by Melin (1923). Csiki has recorded one instance of birds feeding on a robber fly. Quantitatively, one of the principal enemies must be asilids themselves. Possibly lizards may feed on robber flies. Mantids capture an occasional asilid.

PREY

Asilid prey has been given considerable study by Hobby, Poulton, Bromley, Carrera and many others. Out of the numerous publications on food selection by these flies, a few patterns emerge. Certain species in Europe and North America eat hive bees and do great damage at times to apiaries. They have been blamed for the failure of hives of bees in New York state to throw off a swarm. The bee killer of that state is *Promachus fitchii* Osten Sacken. In Texas the corresponding species are *Saropogon dispar* Coquillett and *Diogmites symmachus* Loew and in southern Europe *Dasypogon diadema* Fabricius is widely known as a bee catcher. According to Bromley (1934) Parkes records the killing of over 700 *Saropogon dispar* Coquillett in one bee yard in a 3-day period. Besides these named, many other species have been captured and found with occasional bees. Very few if any insects completely escape the attraction of the predatory robber flies. In England even dragon flies have been listed among their prey. Some species are comparatively unselective.

Melin (1923) states that *Dioctria* Meigen species catch mainly Hymenoptera. Hobby (1932b) found that *Dioctria rufipes* De Geer captured 40 percent Hymenoptera with a predilection for Ichneumonidae; 55 percent of the remaining prey consisted of Diptera. Linsley (1944) noted that of 22 prey records of *Callinicus* Loew, all were *Osmia* and *Andrena* bees. Hobby (1931a) in a lengthy and commendable study of asilid prey and behavior analyzes the prey captures of 23 British species. He notes that the capture darts of species like *Laphria* Meigen may range up to 6 meters and that Leptogastrinae characteristically hunt on the wing rather than by sudden sallies from an observation post. I have frequently found *Leptogaster* Meigen species dangling by a foreleg while sucking their captured prey. The time required to consume the prey varies with its size, but Edwards (1883) watched a robber fly of the group Asilinae capture eight geometrid moths in 20 minutes. Melin (1923) hazards some estimates of feeding time.

Mated asilids are not infrequently seen with the female holding prey of some kind. I have not infrequently found *Megaphorus* Bigot mating with a female and in turn holding prey. I have found *Promachus bastardi* Macquart feeding on *Megaphorus clausicella* Macquart. Several other instances of asilids feeding on asilids have been recorded, even those of the same species. I have seen cannibalism in *Megaphorus* Macquart. Poulton (1906), records cannibalism in

Dasypogon diadema Fabricius as an apparent accompaniment to courtship. Several dipterists have been interested in the relative ease with which robber flies subdue their prey and accounts are summarized by Melin (1923). Several students have commented on the rapidity of the paralysis of the victim after capture, and Bromley (1923) describes the striking ability of *Proctacanthus rufus* Williston to reduce a live bee to the status of a mere shell, by extracting nearly all of the digestive, nervous, and muscular systems. It appears to be unknown whether this reduction is aided by a histolytic enzyme, but in view of the results accomplished, it appears likely. While insects with extremely hard exterior covering like *Curculio* and *Hister* are captured by asilids, there is a relationship between the strength of the mouthparts and the capacity of the fly to subdue very hard insects. It has been reported that an asilid attacked unsuccessfully a chrysidid wasp, which, though held for some time by the fly, was eventually loosed and flew away unhurt.

LARVAL HABITS

The larvae of many genera live in soil. The larvae of the Laphriini and Andrenosomini usually live in decaying wood in old stumps, or beneath bark. I have seen no record of the larval habits of the Atomosini. The larvae of the asilids have been frequently regarded as predatory in habit, especially by early writers. Perris (1871) found *Laphria gilva* Linné associated with *Spondylis buprestoides* and *Criocephalus rusticus*, both beetle larvae, and considered that they were preying on these beetles. Riley (1870a) found *Nerax femoratus* Macquart larvae preying more than once on grasshopper eggs.

Malloch (1917) states that all the larvae of the family that he has found are predatory, feeding on other insect larvae in soil as white grubs or in decaying wood. Melin discusses the evidence up to the time of 1923 with considerable detail. His own observations and experiments are quite to the contrary and he believes that the principal food of asilid larvae is vegetable in character. He presents what seems excellent evidence that asilid larvae subsist on a non-carnivorous-type of food. Melin believes that attack or consumption of animal food sources such as insect larvae is entirely secondary and sporadic, if indeed it ever actually takes place. While Malloch (1917) and Greene (1918) state that asilid larvae feed on other insect larvae, they do not claim to have verified this by direct, personal observation, that is, to have seen asilid larvae initiate the attack and extract the contents from larvae prey. The females of the large group of genera in the Dasypogonini are equipped with circlets of spines on the acanthophorites of the ovipositor and many members of the Asilinae likewise have such accessory structures but of a different pattern; both groups deposit eggs in the soil.

Melin (1923) records the rather unusual egg-laying habit of *Dysmachus picipes* Meigen, which deposits eggs regularly in the spikelets of an ear of *Avena* or *Dactylus*, and this author gives figures of known asilid egg shapes. Apparently, the young larvae, upon hatching, fall to the earth, the fall being retarded by the bristly hairs. Again, he noted *Neoitamus cyanurus* Loew ovipositing in alder buds and strobiles. I once captured a very large species of *Bombomina* Enderlein, which immediately laid two quite large, purplish, very short, oblong eggs. Hardy (1929) records the ovipositing of the curious *Nerterhaptomenus morus* Hardy. He found that the female repeatedly inserted the slender, thin, apical segments of the abdomen down small holes made by beetles on the twigs of Acacia trees and that the fly moved from hole to hole feeling with its ovipositor until such a place was located. A captive specimen in the laboratory readily oviposited within the holes of a cork. Kershaw (1912) has shown that at least one Oriental species of *Promachus* Loew deposits its eggs within an ooetheca-like case on grass stems.

MIMICRY

As regards mimicry in this family, it seems less well marked than is found in the Syrphid flies or butterflies. Melin (1923) does not accept the existence of mimicry in the Asilidae, but in this I believe that he is mistaken. Species exhibiting mimicry increase in hot, humid latitudes and may be quite lacking in the temperate lands. Shelford (1902) calls attention to a species of *Laphria* Meigen resembling the Hymenopteron *Salius seriocosoma;* and also *Hyperechia fera* Wulp resembling the bee *Xylocopa latipes.* An African species of *Hyperechia* Schiner was noted by Marshall (1902) to closely resemble the bee *Xylocopa flavorufa.* The Amazonian species of *Dasyllis* Loew, which resembles bees of the group *Eulaema* and the various species of *Diogmites* Loew and *Blepharepium* Rondani, which resemble some species of wasps, may be considered examples of mimicry. The small asilid *Megaphorus clausicella* Macquart from the southern United States is a good mimic of *Megachile* bees. These examples are generally regarded as falling in the principle of synaposematic mimicry, or mimicry of aggressive resemblances. Both Shelford (1902) and Poulton (1925) have made contributions on this subject. Aggressive mimicry favors aggression and offers a measure of protection from certain enemies. Some species produce a loud buzzing sound in flight not unlike some bumblebees. The curious Chilean asilid *Lycomya germainii* Bigot has for its model the Hymenopteron *Elaphroptera scoliaeformis* Haliday.

The American series of mimics from the southwestern states copy the tarantula hunting wasps of the genus *Pepsis* Fabricius. These noteworthy insects are large, with black or blue-black bodies and wings strikingly colored a yellowish brown. Besides the robber fly *Asilus midas* Brauer, the series contains *Mydas xanthopterus*

Loew, two large staphylinid beetles, and a large, conspicuous ichneumonid-type wasp. In southern Arizona *Blepharepium secabilis* Walker occurs in company with a similarly colored sphecid wasp upon which it preys; the wasp is a little larger than the fly.

Cryptic coloration exists in some forms. Desert species especially tend to match the sandy background and many Laphriini and species of the Atomosini and species of *Andrenosoma* Rondani match the bark on which they rest.

Death feigning has been observed in some captured asilids and has been remarked by Teale. I have noted that *Proctacanthus milbertii* Macquart may remain in catalepsy from several seconds to several minutes. How often this state is reached or occurs under natural conditions is not known.

Zoogeographic Relationships

The Asilidae are world wide in distribution. The majority of the species and genera are found north of the southern tropic, the reduced land masses below this latitude producing fewer. Certain groups significantly characterize certain regions. No endemic or introduced species are known from the Hawaiian Islands but Laphriini and some other types occur sparsely on the smaller island groups. All larger islands south of Asia have a rather abundant asilid fauna, and a few extend onto Fiji, Samoa, New Zealand, and one species is found on Christmas Island.

It is possible to point to genera which constitute characteristic features of certain regions. In the Neotropical region the Megapodinae are unique. In the same region we find a concentration of the Atomosini and the *Holcocephala* Jaennicke branch of the Damalini, as well as the prominent, southward extension of *Diogmites* Loew of the Dasypogoninae and of *Nerax*, new genus, from the Asilinae. Probably Mexico and northern South America can be regarded as the home of the last two named genera; however, the United States is very rich in representatives of both.

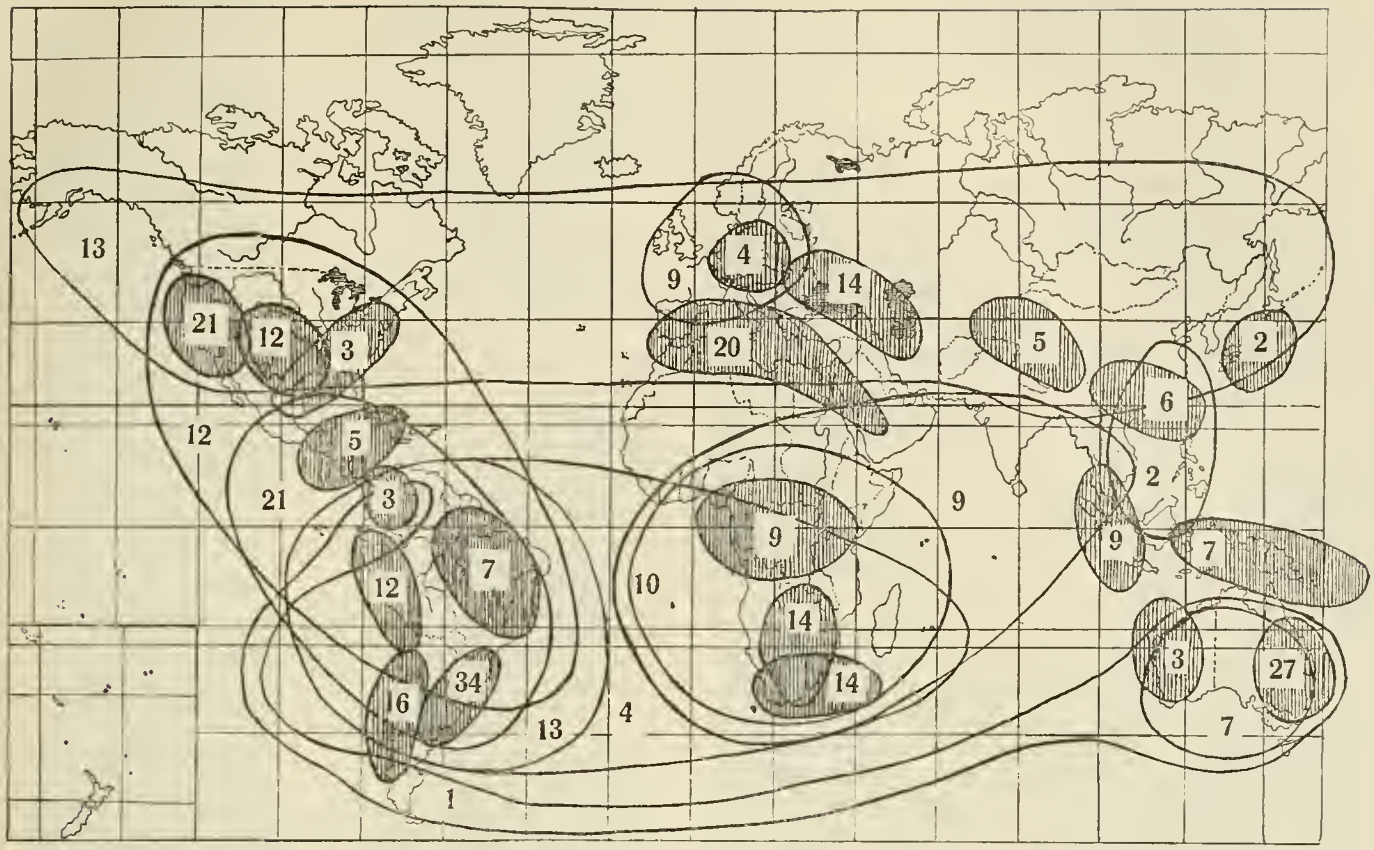
In the northern hemisphere the genera *Laphria* Meigen, *Cyrtopogon* Loew, *Lasiopogon* Loew, and the genus *Asilus* Linné, *sensu lato*, predominate. The *Neolophonotus* Engel group of the Asilinae and the genus *Microstylum* Macquart of the Dasypogoninae are especially well represented in South Africa. In southern Asia and the larger South Pacific islands, the beautiful, metallic flies of the genus *Maira* Schiner replace *Laphria* Meigen. Oddly, the Laphriinae have produced the metallic species in the genus *Lampria* Macquart in the New World tropics, which seem to parallel *Maira* Schiner.

Certain rather numerous, small areas or pockets of concentration in terms of genera and subgenera appear as a result of mapping the more than 4700 species of Asilidae to the point given for the type species. I refer to these regional spots as regions of concentration. I have attempted to show approximately these regions of concentration as small, shaded areas on the map in text-figure 7. The numbers on these dark areas refer to how many genera or subgenera are associated with each area, and which may be regarded as endemic for these areas. Many of the small, shaded areas correspond to the floristic regions of the world as illustrated by Good in Map 4 of his work "*The Geography of the Flowering Plants*," published in 1947. The wider, unshaded areas on the map indicate the additional genera which have a wider distribution. No implications of origin are made for the genera of these areas, although, doubtless, most of these genera had their beginnings there. The generic totals given in the tables below for these small areas do not include other genera which occur in the same region, but which also have a widespread, or more or less continent-wide, or world-wide distribution.

There are 10 asilid genera of nearly world-wide distribution: These genera are *Laphystia* Loew, *Stichopogon* Loew and *Saropogon* Loew of the subfamily Dasypogoninae; *Leptogaster* Meigen of the Leptogastrinae; *Laphria* Meigen, *Andrenosoma* Rondani and *Pogonosoma* Rondani of the Laphriinae; and *Ommatius* Wiedemann, *Promachus* Loew, and *Neoitamus* Osten Sacken of the Asilinae. Of these genera *Saropogon* and *Laphria* are excluded from South America and *Laphystia* is excluded from Australia.

As examples of such areas of concentration, the Chilean region has 16 characteristic genera; the Amazonian area has 7 such genera; what is here termed the La Plata region, including the eastern part of South America south from Rio de Janeiro as far as Buenos Aires, has 33; and other areas are shown on the map. In North America, curiously, there appear to be 18 characteristic genera, of these 13 genera characterize the south-central part of the United States west of the Mississippi River and only 3 characterize the States east of this river. South Africa shows 38 characteristic genera, of which 14 might be called genera found in the Cape region. There are, in addition, 9 other genera peculiar to central Africa. The Mediterranean area has 20 genera and the Transcaucasus has 15 genera, both of these areas being exceptionally interesting in terms of their special asilid fauna.

Especially interesting are the population values in terms of genera and species for small regions and specific localities. Lists for specific localities are very scarce or wanting. For Oxford, Mississippi, in a 3-mile radius I have found 49 species in 28 years of collecting. My list of Asilidae from Mississippi is still quite incomplete, but will probably compare well with the Florida list of 96 species by Bromley (1950). Bromley (1934) listed 161 species from Texas, a list which is also incomplete and reflects at once the large size of that State and the increasing aridity. James (1938) listed 122 species from Colorado. Johnson (1925) listed 45 species from Maine, 72 from Massachusetts, and Bromley (1946) listed 68 Asilidae from Connecticut. Bromley (1950) listed 94 species from Ohio, and in 1932, listed 28 species from Patagonia and South Chile. Verrall (1909) listed 23 species from England,



Text-Figure 7.—Concentration areas of asilid genera and subgenera.

11 from Scotland and 1 from Ireland. Seguy (1927) lists 133 species from France. Engel (1932) lists 82 Asilidae from Germany. Melin (1923) gives 25 species from Sweden. Far northern localities are likely to have their species totals increased by the abundance of *Cyrtopogon* Loew and *Laphria* Meigen, abundant at higher latitudes. Lundbeck (1908) lists 28 species from Denmark. Efflatoun (1934, 1937) lists 88 species from Egypt.

The tabulation below attempts to show the extent of the fauna Asilidae for the larger land masses. It includes all genera for each continent, for each northern segment above the Tropic of Cancer and treated collectively it shows the total genera for each vertical land conglomerate such as North and South America, Europe and Africa, and Asia with the Indo-Malayan, Papuan, and Australian regions. These areas yield some interesting, distributional facts. Most of the subgenera have been omitted from the totals of genera given below.

NUMBER OF GENERA KNOWN FROM VARIOUS AREAS

WESTERN HEMISPHERE

Nearctic region only	39
Nearctic region and in Europe, or Asia, or both	13
Nearctic region and in Africa	1
Nearctic region and having a nearly world-wide distribution	10
Nearctic region and in Central America	3
Nearctic region and in South America	16
Total occurring in the Nearctic region	82
Central America only	5
South America only	105
South America and in Africa	4
Total occurring in Western Hemisphere	196
South America, including those shared with North America and with Africa	125
Nearctic region above Tropic of Cancer	66
Below Tropic of Cancer	141

EUROPE AND AFRICA

Europe only	8
Palaearctic region and predominant there	8
Holarctic region	11
World-wide, including Europe	8
Transcaucasus and Europe	1
North Africa and Europe	8
Total occurring in Europe	44
South Africa and Central Africa	47
South Africa and also in Holarctic region	7
Africa	103
Euro-African land mass	122
Above Tropic of Cancer	52
Below Tropic of Cancer	80

ASIA, INDO-MALAYA, PAPUA, AND AUSTRALIA

Asia above Tropic of Cancer	33
Asia, including those below Tropic of Cancer	65
Below Tropic of Cancer, and including Australia	66
Papuan region only	6
Australia only	20
Australia, exclusive of Papua	30
Australo-Asiatic land mass	105

Tabulated below are the number of species of Asilidae by subfamily according to standard world regions. I have largely followed Darlington (1957) in the selection of the boundaries of world regions. The heavy preponderance of species in the Neotropical region will be noted, as well as the large total for the western hemisphere, which totals about 1874 species.

Region	*Dasypogoninae*	*Leptogastrinae*	*Megapodinae*	*Laphriinae*	*Asilinae*	*Total*
Nearctic	455	31	—	96	203	785
Neotropical	340	48	33	236	432	1089
Palaearctic	413	48	—	81	400	942
Ethiopian	326	36	—	117	303	782
Oriental	121	57	—	116	269	563
Australian	139	29	—	99	172	439
Oceania	2	1	—	4	7	14
Country unknown	38	2	—	14	66	120

The tabulation below shows the component genera from the series of regional pockets, or concentrations of unique genera of limited range, which have been discussed above. It is not implied that the areas mentioned constitute absolute limits of the genera included, but rather that they represent approximately such regions and represent areas where such genera are especially characteristic.

ASILID GENERA AND SUBGENERA FROM VARIOUS REGIONS

WESTERN UNITED STATES

Dicolonus Loew
Bohartia Hull
Zabrops Hull
Willistonina Back
Scleropogon Loew
Callinicus Loew
Coleomyia Wilcox and Martin
Nannocyrtopogon Wilcox and Martin
Eucyrtopogon Curran
Metapogon Coquillett
Itolia Wilcox
Backomyia Wilcox and Martin
Ablautus Loew
Comantella Currau
Lestomyia Williston
Parataracticus Cole
Atomosiella Wilcox
Negasilus Curran
Ospriocerus Loew
Hodophylax James
Wilcoxia James
Omninablautus Pritchard
Cerotainiops Curran
Apachekolos Martin
Beameromyia Martin
Megaphorus Bigot
Proctacanthella Bromley
Efferia Coquillett

EASTERN UNITED STATES

Ceraturgus Wiedemann
Ceraturgopsis Johnson
Dasylechia Williston

TEXAS-OKLAHOMA AREA OF THE UNITED STATES

Bromleyus Hardy
Psilocurus Loew

CENTRAL AMERICA AND WEST INDIES

Lissoteles Bezzi
Sphageus Loew
Cystoprosopa, new genus
Eurhabdus Aldrich
Opopotes Hull

NEARCTIC REGION (OF WIDER DISTRIBUTION)

Ecthodopa Loew
Neopogon Bezzi
Nicocles Jaennicke
Tipulogaster Cockerell
Bombomima Enderlein

CENTRAL AND SOUTH AMERICA

Orrhodops Hull
Archilestris Loew
Dicranus Loew
Plesiomma Macquart
Lastaurus Loew
Blepharepium Rondani
Schildia Aldrich
Leptopteromyia Williston
Lampria Macquart
Smeringolaphria Hermann
Rhopalogaster Macquart
Pilica Curran
Neophoneus Macquart
Atractia Macquart
Eumecosoma Schiner
Aphestia Macquart
Senobasis Macquart
Pseudorygelus Carrera
Promachina Bromley
Eicherax Bigot
Lecania Macquart

NORTH ANDEAN (CORDILLERAN REGION)

Alyssomyia, new genus
Zabrotica Hull
Pholidotus Hermann
Strombocodia Hermann
Hybozelodes Hermann
Lophoceraea Hermann
Protichisma Hermann
Bathropsis Hermann
Oidardis Hermann
Pronomopsis Hermann
Ctenodontina Enderlein
Lestophonax, new genus

PATAGONIA, CHILE, BOLIVIA

Pritchardia Stuardo
Obelophorus Schiner
Hexameritia Speiser
Dasypecus Philippi
Dasycyrton Philippi
Deromyia Philippi
Lamprozona Hermann
Automolina Hermann
Philonerax Bromley
Lochmorhynchus Engel
Cratolestes, new genus
Myaptex, new genus
Lycomya Bigot
Chilesus Bromley
Stizolestes, new genus
Cratopoda, new genus
Neodiogmites Carrera
Cleptomyia Carrera
Megonyx, new genus
Tocantinia Carrera
Dasyllis Loew
Megapoda Macquart
Doryclus Jaennicke

LA PLATA REGION

Helolaphyctis Hermann
Macrocolus Engel
Tolmerolestes Lynch Arribálzaga
Cylicomera Lynch Arribálzaga
Prolepsis Walker
Phonicocleptes Lynch Arribálzaga
Acronyches Williston
Caenarolia Thomson
Lastauroides Carrera
Mirolestes Curran
Theromyia Williston
Annamyia Protchard
Aspidopyga Carrera
Aczelia Carrera
Enigmomorpheus Hermann
Systellogaster Hermann
Ichneumolaphria Carrera
Alipiolaphria Carrera
Hodites, new genus
Othoniomyia Hermann
Cyphotomyia Williston
Rhathimomyia Lynch Arribálzaga
Dissmeryngodes Hermann
Pseudorus Walker
Eichoichemus Bigot
Porasilus Curran
Cerozodus Bigot
Apotinocerus Hull
Leptoharpacticus Lynch Arribálzaga
Leinendera Carrera
Nyssoprosopa, new genus
Anarmostus Schiner
Threnia Schiner

SOUTH AMERICA (OF WIDER DISTRIBUTION)

Macahyba Carrera
Triclioscelis Roeder
Apoxyria Schiner
Lastaurina Curran
Lastaurax Carrera
Lastauronia Carrera
Cyrtophrys Loew
Aphamartania Schiner
Austenmyia Carrera
Paratractia, new genus
Senoprosopis Macquart
Glaphyropyga Schiner
Epipamponerus Becker

COLOMBIAN AREA

Diplosynapsis Enderlein
Cryptomerinx Enderlein
Centrolaphria Enderlein

NORTH AND SOUTH AMERICA

Holcocephala Rondani
Townsendia Williston
Diogmites Loew
Cophura Osten Sacken
Atomosia Macquart
Cerotainia Schiner
Atoniomyia Hermann
Mallophora Macquart
Nerax, new genus
Proctacanthus Macquart
Eccritosia Schiner
Regasilus Curran
Dizonias Loew

HOLARCTIC

Dioctria Meigen
Myelaphus Bigot
Haplopogon Engel
Lasiopogon Loew
Stenopogon Loew
Cyrtopogon Loew
Holopogon Loew
Heteropogon Loew
Cerdistus Loew
Philonicus Loew
Machimus Loew
Epitriptus Loew
Tolmerus Loew

EUROPE ALONE (OR CHARACTERISTIC OF THAT REGION)

Leptarthrus Stephens
Cyclocerus Bezzi
Palamopogon Bezzi
Pseudoholopogon Strobl
Ecthistus Loew
Rhadiurgus Loew
Erax Scopoli
Pamponerus Loew
Stilpnogaster Loew

PALAEARCTIC

Molobratia Hull
Pycnopogon Loew
Choerades Walker
Satanas Jacobson
Eutolmus Loew
Dysmachus Loew
Acanthopleura Hermann
Neomoctherus Osten Sacken

MEDITERRANEAN REGION, INCLUDING ARABIA

Torebroma Hull
Triclis Loew
Glyphotriclis Hermann
Scytomedes Hermann
Acrochordomerus Hermann
Rhadinus Loew
Galactopogon Engel
Eriopogon Loew
Habropogon Loew
Anisopogon Loew
Amphisbetetus Hermann
Psilinus Wulp
Dasypogon Meigen
Paraphamartania Engel
Ctenota Loew
Paractenota Efflatoun
Löwinella Hermann
Eccoptopus Loew
Polyphonius Loew
Antipalus Loew

AFRICA MEDITERRANEAN REGION, INCLUDING AFRICA

Trichardis Hermann
Sisyrnodytes Loew
Acnephalum Macquart
Oligopogon Loew
Ancylorrhynchus Latreille
Lamyra Loew
Stiphrolamyra Hermann

CENTRAL AFRICA

Discodamalis Karsch
Icariomima Enderlein
Margaritola Hull
Oxynoton Jannsens
Paroxynoton Jannsens
Teratopus Loew
Dolichoscius Jannsens
Dinozabrus, new genus
Heligmoneura Bigot

SOUTH AND CENTRAL AFRICA

Hoplistomerus Macquart
Spanurus Loew
Ammophilomima Enderlein
Euscelidia Westwood
Lasiocnemis Loew
Dasyllina Bromley
Storthyngomreus Hermann
Proagonistes Loew
Enagaedium Engel
Philomachus Karsch

SOUTH AFRICA

Hermanella, new genus
Laphystiella, new genus
Gerrolasius Hermann
Saucropogon, new genus
Rhacolaemus Hermann
Gonioscelis Schiner
Daspletis Loew
Oratostylum Ricardo
Neodysmachus Ricardo
Lagodias Loew
Hobbyus Bromley
Neolophonotus Engel
Lophopeltis Engel
Lophybus Engel

AFRICAN, CAPE REGION

Lasiodamalis Hermann
Lophurodamalis Hermann
Dioctobroma, new genus
Enagaedium Engel
Philomachus Karsch
Pegesimallus Loew
Rhabdogaster Loew
Lycostomus Hermann
Anypodetus Hermann
Sporadothrix Hermann
Hippomachus Engel
Megadrillus Bigot
Synolcus Loew
Dasophrys Loew
Neodasophrys Ricardo
Dysclytus Loew

AFRICA AND ASIA

Damalis Fabricius
Microstylum Macquart
Neolaparus Williston
Laxenecera Macquart
Hyperechia Schiner
Goneccalypsis Hermann
Apoclea Macquart
Philodicus Loew
Alcimus Loew

AFRICA AND SOUTH AMERICA

Rhipidocephala Hermann
Scylaticus Loew
Hypenetes Philippi
Nusa Rondani

TRANSCAUCASUS

Hoplotriclis Hermann
Perasis Hermann
Udenopogon Becker
Eremodromus Zimin
Turkmenomyia Paramonov
Crobilocerus Loew
Jothopogon Becker
Anarolius Loew
Mecynopus Engel
Iranopogon Timon-David
Amathomyia Becker
Polysarca Schiner
Polysarcodes Paramonov

CENTRAL ASIA

Oldroydia Hull
Toremyia Hull
Hystrichopogon Hermann
Merodontina Enderlein
Trichomachimus Ricardo

SINO-FORMOSA AND JAPAN

Grypoctonus Speiser
Sinopsilonyx Hsia
Opeatocerus Hermann
Hoplopheromerus Becker
Epiklisis Becker
Oligoschema Becker
Orophotus Becker

SINO-MALAYAN REGION

Damalina Doleschall
Archilaphria Enderlein
Lagynogaster Hermann
Emphysomera Schiner
Cophinopoda Hull

INDO-MALAYAN REGION

Aireina Frey
Mesoleptogaster Frey
Pagidolaphria Hermann
Maira Schiner
Michotamia Macquart
Trypanoides Becker
Clephydroneura Becker
Astochia Becker
Cinadus Wulp
Haplonota Frey
Strophipogon Hull

INDONESIA

Trigonomima Enderlein
Astylopogon de Meijere
Ophionomima Enderlein
Orthogonis Hermann
Anisosis Hermann
Anoplothyrea de Meijere
Dichaetothyrea de Meijere
Anacinaces Enderlein
Amphiscolops, new genus

PAPUA AND CELEBES

Clinopogon Bezzi
Epaphroditus Hermann
Clariola Kertész
Opocapsis Hull
Despotiscus Bezzi
Chymedax Hull
Cenochromyia Hermann

EASTERN AUSTRALIA

Nerterhaptomenus Hardy
Aplestobroma Hull
Broticosia Hull
Psilozona Ricardo
Chryseutria Hardy
Codula Macquart
Cryptopogon White
Neoscleropogon Malloch
Neodioctria Ricardo
Harpagobroma, new genus
Neocyrtopogon Ricardo
Rachiopogon Ricardo
Chylophaga, new genus
Ateropogon Hardy
Paraterpogon Paramonov
Apothechyla, new genus
Stizochymus, new genus
Austrosaropogon Hardy
Daptolestes, new genus
Erythropogon White
Cabaza Walker
Brachyrrhopala Macquart
Thereutria Schiner
Metalaphria Ricardo
Cyanonedys Hermann
Adelodus Hermann
Neocerdistus Hardy

WEST AUSTRALIA

Opseostlengis White
Questopogon Dakin and Fordham
Dakinomyia Hardy

AUSTRALIA CONTINENT

Phellus Walker
Chrysopogon Roeder
Neosaropogon Ricardo
Blepharotes Westwood
Pararatus Ricardo
Neoaratus Ricardo

AUSTRALIA, INCLUDING SOUTH AMERICA

Bathypogon Loew

Fossil Asilidae

A total of 39 species of fossil asilid flies are known at the present time, excluding the species *Leptogaster erecta* Meunier (1906) from Zanzibar copal. Several curious results are apparent from a consideration of these species and genera according to their separate horizons and subfamilies. The final definition of the genera in this family are to a very great extent based on characters other than wing venation, which makes many generic assignments problematical; but it is upon wing venation that an assignment of fossil flies must be made to the family and to the subfamilies of the Asilidae and this can be done with a high degree of accuracy. Consequently, in the check list of known fossil species here presented, I have used the names assigned by the original authors with comments only where I myself have seen the type specimens. The scope of this generic study does not permit a complete review of the fossil asilid species.

We know fossil asilids from a single Eocene deposit, the Green River shales, in which the family is represented by 2 subfamilies, 3 genera and 3 species. Among the 3 genera are 2 forms assigned to extinct genera. One of these is *Stenocinclis anomala* Scudder from the subfamily Dasypogoninae; another, *Asilopsis fusculus* Cockerell is from the Asilinae. The third species, *Asilus palaeolestes* Cockerell, was placed by Cockerell in a Recent genus. The scarcity of Eocene records in this family is much to be regretted.

In the Oligocene, it is notable that six deposits show asilids and that, while only one dasypogonine and one leptogastrine fly are known, no less than seven species of Asilinae in three genera have been described, besides two other examples referred to *Asilus* Linné without descriptions.

In the Miocene the subfamily Leptogastrinae is known by two species from two deposits. The Dasypogoninae are represented by 13 species in 10 genera; of these generic assignments 6 were made by Cockerell and 3 by James. The Miocene Dasypogoninae all come from deposits in the Miocene Florissant of Colorado, with one exception from Radoboj and one from the Ruby Basin of Montana. Also, no less than 12 species of Asilinae have been described from two Miocene deposits, the Florissant of Colorado and Oeningen. These 12 species of Asilinae, according to their authors, fall into 3 genera. No fossil fly of the subfamily Laphriinae is yet known from any formation.

In connection with fossil Asilidae it should be noted that Bode (1953) has described and figured *Eoasilidea fragmentosa* Bode (1953) which he calls the type of a new family, the Eoasilidae. As I have not seen this fossil fly I can not comment on it, except to point to the apparently large number of crossveins in both this and his other new genera and families. In many of these he shows 30 or more crossveins. The material was reported from the Upper Lias.

From the fossil asilids what general conclusions, if any, are we entitled to draw concerning the origin of the family Asilidae? First, we must put the origin of the family before the Eocene. Second, there is, perhaps, an understandable dearth of fossils from the Eocene, but in any case the two principal subfamilies make their appearance in this horizon. There is a less understandable dearth of fossils of the subfamily Dasypogoninae from the Oligocene, inasmuch as five deposits show asilids with only one representative of the Dasypogoninae among the eight known species. The greater number of these Oligocene species come from the Baltic amber. This is a medium that could be expected to trap both of these main subfamilies to about an equal extent. Since I believe that we are obliged to accept the conclusion that the Dasypogoninae and Leptogastrinae both antedated the higher and more specialized Asilinae, it is all the more peculiar that we have thus far not found Dasypogoninae in abundance as fossils in pre-Miocene formations. The explanation may well be that not until Miocene times were the flies of this family differentiated out into a multiplicity of types. On the other hand, future collections of fossil flies may increase the number of genera and species known from lower horizons. Thus far, of the known species and genera, it is interesting to note an approximate threefold increase in species from the Oligocene over the Eocene, and a threefold increase of species and genera as well, in the Miocene over the Oligocene.

In the Dasypogoninae are to be noted three tribes, of which one is the Dioctrini with two species; in this study this tribe is assigned a key position as the most generalized of all tribes within the subfamily. Of the remainder, which fall into the Dasypogoninae, we note that five species occur in the Stenopogonini or "simple tibia" group, with the anterior tibia not spined at apex, and five in the Dasypogonini. Recent genera with nonrotate male terminalia are not represented. Of them all, only the species of *Dioctria* Meigen represent genera in which the female lacks acanthophorite spines.

In a comparison of the fossil species assigned to Recent genera and compared with present day forms, we are frequently able to note small but interesting changes in the wing venation suggesting subgeneric status in some cases. I erected a subgenus *Eosenoprosopis* Hull (1957) for two of the fossil species of *Seno-*

prosopis Macquart. James (1939) has commented on venational differences in his species *Ceraturgopsis praecursor* James.

Genera Known Only From Fossil

The following genera are known only from fossils:

Genus *Stenocinclis* Scudder

FIGURE 2536

Stenocinclis Scudder, Rep. U.S. Geol. Surv. Terr., vol. 13, p. 563, 1890. Type of genus: *Stenocinclis anomala* Scudder, 1890, by monotypy.

I quote Scudder's description:

> This genus is founded wholly upon characters drawn from the neuration of the wings, the only portion of the insect preserved. It falls into the group of Dasypogonina, in which the second longitudinal vein terminates on the margin apart from the first longitudinal vein instead of uniting with it just before the margin. It is not very far removed from *Dioctria* Meigen but differs from it and all Asilids I have examined in that the third longitudinal vein arises from the first before the middle of the wing, instead of from the second longitudinal vein after its emission from the first; the first longitudinal vein has therefore 2 inferior shoots, giving the wing a very peculiar aspect; indeed it would be hard to know where to look for a similar feature among allied Diptera unless it would be in the anomalous group of Cyrtidae. The wing is very slender and all the cells unusually elongated which also gives it a very unique appearance.

In the figure the curve of the presumptive anterior branch of third vein is similar to any one of several genera, as for example, *Saropogon* Loew, *Laphystia* Loew, *Dioctria* Meigen.

Genus *Asilopsis* Cockerell

FIGURE 2535

Asilopsis Cockerell, Proc. U.S. Nat. Mus., vol. 57, pp. 250-251, 1920. Type of genus: *Asilopsis fusculus* Cockerell, 1920, by original designation.

I quote from Cockerell's descriptions of *Asilopsis* and *A. fusculus*, as follows:

> Small flies apparently related to Asilinae or Laphriinae; marginal cell closed far from end of wing; base of marginal obtuse, and the part basad of basal end of first submarginal much longer than that apicad of it; first basal on first submarginal scarcely longer than anterior cross-vein; discal cell elongated, with anterior cross-vein far toward the base; two submarginal cells, the second less than half as long as the first; second posterior cell somewhat swollen towards base; fourth posterior apparently open. . . . The dark cloud in the apical part of the marginal cell is suggestive of Leptidae, and is not an asilid character. It is possible if we had the whole fly a distinct family would be indicated, and on the wing alone it seems justifiable to establish a subfamily Asilopsinae.

Cockerell calls attention to a dark cloud at the end of the marginal cell, speaking of it as a leptid character. Cockerell's whole genus is based upon a wing only, and I should like to point out that a dark, stigmal spot near or associated with the apex of the marginal cell is also characteristic of some stratiomyids, as *Allognosta* Osten Sacken and *Beris* Latreille. Since the first and second veins end so close together in *Xylophagus* Meigen, it would not require any great change to derive from it a wing very similar to *Asilopsis* Cockerell. Apart from the peculiar, marginal cell the venation is a great deal like some species of *Cyrtopogon* Loew and *Toremyia* Hull. Since it is possible to pick out rhagionid wings not too far removed from asilid wings, the ultimate interpretation of *Asilopsis* Cockerell must rest upon the presence or absence of a proboscis and the character of the pretarsus. Without further material and for the reasons given above, I reject a subfamily based upon this fly.

Subgenus *Eosenoprosopis* Hull

Eosenoprosopis Hull, Psyche, vol. 64, no. 2, p. 42, 1957. Type of subgenus: *Senoprosopis romeri* Hull, 1957, by original designation.

Wing with no posterior crossvein, the veins at end of second basal cell crossed and the fourth posterior cell with no petiole at its base. Anterior branch of third vein ends clearly at the apex of the wing, as in *Opopotes* Hull, a Recent genus. It appears to be intermediate between *Opopotes* and *Senoprosopis* Macquart.

I wish also to comment upon the assignment of *Senobasis antiqua* James, since I have examined the type. In the type the preservation of the apex of the right fore tibia is excellent; it shows a weak spine or tibial process with no basitarsal modification and is in very much contrast to the pronounced and remarkable protuberance present in all species of *Senobasis* Macquart today with their accompanying flangelike process of the basitarsus. I consider it more likely that the fly in question is related to *Lestomyia* Williston. I therefore propose for *Senobasis antiqua* the new genus *Palaeomolobra* with type of genus *antiqua* James.

***Palaeomolobra*, new genus**

Type of genus: *Senobasis antiqua* James, 1939.

This genus is defined by the weak spine on anterior tibia, the widely open marginal cell and the closed fourth posterior cell with the posterior intercalary vein strongly convex.

Checklist of Fossil Asilids

The list below gives by subfamily the known species and genera of fossil asilids and is believed to be complete as of 1953. References are included in the general bibliography.

FROM EOCENE FORMATIONS

DASYPOGONINAE

Stenocinclis anomala Scudder, 1890. Green River shales.

ASILINAE

Asilopsis fusculus Cockerell, 1920. Green River shales.
Asilus palaeolestes Cockerell, 1921. Green River shales.

FROM OLIGOCENE FORMATIONS

Asilidae Helm, 1896. Baltic amber, Germany.

Dasypogoninae

Holopogon pilipes Loew, 1850. Baltic amber, Bernstein fauna, Germany.

Leptogastrinae

Leptogaster falloti Theobald, 1937. Camoins, France.

Asilinae

Proctacanthus fractus Cockerell, 1921. Isle of Wight.
Asilus klebsi Meunier, 1908. Baltic amber, Germany.
Asilus sannoisiensis Meunier, 1915. Aix in Provence, France.
Asilus gurnetensis Cockerell, 1921. Isle of Wight.
Asilus angustifrons Loew, 1850. Baltic amber, Bernstein fauna, Germany.
Asilus trichurus Loew, 1850. Baltic amber, Bernstein fauna, Germany.
Asilus sp. Serres, 1829. Aix in Provence, France.
Asilus sp. Heyden, 1870. Lignite beds of Rott, Siebengebirge at Bonn, Germany.
Machimus kollmanni Timon-David, 1944. Basin of Marseille, France.

FROM MIOCENE FORMATIONS

Asilidae Scudder, 1881. Florissant shales, Colorado.

Dasypogoninae

Holopogon architestes Hull, 1960. Ruby Basin, Montana.
Dioctria? florissantina Cockerell, 1909. Florissant shales, Colorado.
Dioctria? pulveris Cockerell, 1917. Florissant shales, Colorado.
Nicocles miocenicus Cockerell, 1909. Florissant shales, Colorado.
Taracticus contusus Cockerell, 1910. Florissant shales, Colorado.
Taracticus renovatus Cockerell, 1911. Florissant shales, Colorado.
Cophura antiquella Cockerell, 1913. Florissant shales, Colorado.
Saropogon oblitescens Cockerell, 1914. Florissant shales, Colorado.
Microstylum wheeleri Cockerell, 1908. Florissant shales, Colorado.
Microstylum? destructum Cockerell, 1909. Florissant shales, Colorado.
Lestomyia miocenica James, 1939. Florissant shales, Colorado.
Ceraturgopsis praecursor James, 1939. Florissant shales, Colorado.
Palaeomolobra borealis James, 1939. Florissant shales, Colorado.

Leptogastrinae

Leptogaster hellii Unger, 1839. Marls of Radoboj, Croatia.
Leptogaster prior Melander, 1946. Florissant shales, Colorado.

Asilinae

Asilus amelanchieris Cockerell, 1911. Florissant shales, Colorado.
Asilus wickhami Cockerell, 1914. Florissant shales, Colorado.
Asilus peritulus Cockerell, 1909. Florissant shales, Colorado.
Asilus curculionis Melander, 1946. Florissant shales, Colorado.
Asilus florissantinus James, 1939. Florissant shales, Colorado.
Asilus bicolor Heer, 1849. Oeningen shales, Germany.
Asilus antiquus Heer, 1849. Oeningen shales, Germany.
Asilus deperditus Heer, 1849. Oeningen shales, Germany.
Philonicus saxorum James, 1939. Florissant shales, Colorado.
Senoprosopis (Eosenoprosopis) antiquus James, 1939. Florissant shales, Colorado.
Senoprosopis (Eosenoprosopis) romeri Hull, 1957. Florissant shales, Colorado.
Senoprosopis eureka Melander, 1949. Florissant shales, Colorado.

Family Asilidae

KEY TO SUBFAMILIES AND TRIBES OF ASILIDAE

1. Palpus of 1 segment 2

Palpus of 2 segments (with sometimes the vestiges of a third segment) 10

2. Marginal cell closed 5

Marginal cell open 3

3. Alula absent . . . . Leptogastrinae

Alula present 4

4. Third antennal segment spindle-shaped, with apical microsegment; fourth posterior cell generally open or closed in the margin; the anterior medial mesonotum extends into the pronotum. Females with terminal spines (*Neolaparus* Williston) . . . . Dasypogoninae

Third antennal segment clavate, with only apical pit; fourth posterior cell generally, if not always, closed and stalked; anterior medial mesonotum not extended into pronotum (*Senobasis* Macquart) . . . . Megapodinae

5. Terminal segment of antenna bears a long, slender, aristaform style, with or without minute, intermediate microsegments (Asilinae) 9

Terminal segment without a long, slender style 6

6. Foretibial apex with a strongly developed protuberance and spine; anterior basitarsus with a stout flange; dorsal and ventral components of male terminalia united at base. Megapodinae

Foretibial apex with simple bristles only 7

7. Males with 8 tergites. Females with abdomen elongate, tapering, attenuate, rarely broad and flattened . . . 8

Males with 7 tergites. Females without ovipositorial spines. Flies with blunt claws, form short and robust or with elongate, subclavate abdomen and long legs. Ctenotini

8. Third antennal segment very long and slender, with short bristle bearing microsegment; females without ovipositorial spines (*Glaphyropyga* Schiner, *Chilesus* Bromley, *Lycomya* Bigot) . . . . Asilinae

Third antennal segment short,dilated or widened subapically, without a short, slender style. Female acanthophorites with a prominent circlet of several pairs of stout, sharp spines . . . . Enigmomorphini

9. Style of antenna plumose . . . . Ommatini

Style of antenna simple . . . . Asilini

10. Marginal cell closed and petiolate, or closed in the margin of the costa 11

Marginal cell open (Dasypogoninae) 15

11. Anterior tarsal apex with spine (Dasypogoninae). Thereutrini

Anterior tarsal apex simple 12

12. Marginal cell with a distinct and well developed stalk or petiole and never with the second vein recurrent (Laphriinae) 13

Marginal cell without a petiole, or if a very short petiole is present the second vein is strongly recurrent (Dasypogoninae) . . . . Laphystini

13. Postmetacoxal area chitinized; or if rarely unchitinized (*Paratractia*, new genus) a dorsal, antennal spine is present . . . . Atomosini

Postmetacoxal area membranous 14

14. Palpal end segment cylindroid. Proboscis usually laterally compressed, never flattened dorsoventrally . . Laphriini

End segment of palpus hemicylindroid and excavated Proboscis usually compressed dorsoventrally, at least at apex; never flattened laterally . . . . Andrenosomini

15. Notopleuron with a stout spine . . . . Chrysopogonini

Notopleuron with bristles only 16

16. Lateral slopes of metasternum without pile. Vertex expanded and usually greatly widened. Second palpa segment usually small, cylindrical, with few hairs or none. Apex generally truncate. With few exceptions small or even minute flies . . . . Stichopogonini

Lateral slopes of metasternum with pile 17

17. Palpus very large, the second segment exceptionally long and bristly. Anterior branch of third vein near its base with a spur vein. Large and often extremely large flies . . . . Phellini

Palpus small, often minute. Anterior branch of third vein very rarely with a subbasal spur. Small to medium size flies, more rarely large 18

18. Head exceptionally wide and short, unflattened on anterior aspect; vertex low, leaving a "goggle-eyed" aspect. Small or at most medium size flies . . . . Damalini

Head of normal length and width 19

19. Males 20

Females 23

20. Tergites distinctly limited to six; lateral tergal margins often with stout bristles . . . . Laphystini

More than 6 tergites developed, or if only six (*Nicocles* Jaennicke) the last two are greatly flattened with dense, silvery micropubescence 21

21. Eighth tergite developed and a vestige of the antepenultimate palpal segment usually present. Antennal segments 4 to 6 in number. Terminalia usually not or only partly rotate. Gonopods and lateral apices of the sulcate epandrium often with long, lobe-like processes. Dorsal pronotum with fine pile or bristly hairs. Occiput without strong bristles. Apex of anterior tibia never with spine. Dioctrini

Eighth tergite usually limited to a trace. Only 2 tarsal segments present. Antennal segments 3 and 4 often with apical spine. Terminalia usually rotate, except in *Stenopogon* Loew and allies. Dorsal pronotum and occiput generally with strongly differentiated bristles 22

22. Anterior tibia never with spine at apex . Stenopogonini

Anterior tibia always with spine at apex . . Dasypogonini

23. Terminalia with a quarter-circlet of spines on each acanthophorite. These spines sometimes small, obscure and recessed (*Brachyrrhopala* Macquart, *Cabaza* (Walker) . 24

No spines present on female terminalia 25

24. Anterior tibia never with spine present at apex. Stenopogonini

Anterior tibia always with spine at apex . . Dasypogonini

25. Prosternal sclerites free from the pronotum. Lateral epistomal creases continued to the rear of the occiput. Tergites, except the first, never with differentiated bristles. Dioctrini

Prosternum fused to the pronotum. Lateral epistomal creases closed behind, tending to leave a pit anteriorly. Tergite with or without strong bristles laterally. Laphystini

Subfamily Dasypogoninae

Five tribes of Dasypogoninae are regarded as being essentially generalized. All lack the acanthophorites and their accompanying spines. These tribes are the Dioctrini, Phellini, Chrysopogonini, Damalini and the Laphystini. Five other tribes have present the circlets of stout spines on the acanthophorites of the ninth tergite in the female sex. In this group we find the Dasypogonini, with the Stenopogonini and the small groups of Stichopogonini, Enigmomorphini, and Thereutrini.

Some interesting zoogeographic relationships are to be found. The Dioctrini occur sparingly in all world regions, poorly in Asia, Australia, Ethiopia and South America. The Chrysopogonini and Thereutrini are restricted to Australia. The Phellini are restricted to Australia and Chile. The Damalini are most numerous in southern Asia and the northern Neotropical region. They are absent from Europe proper and are poorly represented in Australia, if at all, but are found in Ethiopia. The Laphystini are world wide, but scarce in southern South America and in Australia; they are best developed in the Holarctic region. The Stichopogonini are almost world wide but seem to be very poorly represented in the Neotropical region. The Dasypogonini and the Stenopogonini are both world wide. Endemic genera will be mentioned in the discussion of the several tribes.

Tribe Dioctrini

Here are placed those Dasypogoninae, excepting *Phellus* Walker, *Damalis* Fabricius, *Laphystia* Loew, *Chrysopogon* Roeder and their allies, in which the female ninth tergite is generalized and lacks acanthophorites and spines. The genera which fall here are few in number, but they appear to be most generalized of all present day Asilids which have a simple ovipositor. Two species of fossil flies from the Miocene of Colorado have been referred to *Dioctria* Meigen with a question, by Cockerell (1909, 1917). The marginal cell is widely open and all of the posterior cells are widely open, except in *Pritchardia* Stuardo and *Aplestobroma* Hull, where the fourth posterior cell is closed and stalked. Palpus always with 2 segments and sometimes with a distinct trace of the antepenultimate segment. Because of certain general similarities in construction, it is possible that *Brachyrrhopala* Macquart and its allies such as *Austrosaropogon* Hardy and even *Erythropogon* White may have been derived from the ancient Dioctrini, and of course the same may be true of all higher members of the subfamily. The construction of the head in the Laphystini also shows a similarity in the Dioctrini. The flies of this group are restricted to the Holarctic region, except for the remarkable Australian genus *Nerterhaptomenus* Hardy, which appears to belong in this tribe. Several sketches were included with the original description. The types are reported to be lost. Although I made a special search while in Brisbane at the proper season in 1953, I was not able to collect new material of this genus. The outlying part of this city is the type locality for this genus.

KEY TO GENERA OF DIOCTRINI

1. Anterior tibia with a spine at apex; female terminalia without spines 2
   Anterior tibia without trace of spur or spines 3
2. Apical spine of anterior tibia attached to a long, stout, apical process. Anterior tibia and tarsus unusually long. Male hind basitarsus not different from the female. Male abdomen with 7 tergites; female with 8 tergites; acanthophorites and spines absent. Third antennal segment with dorsal setae and short, stout, spine-tipped microsegment. MOLOBRATIA Hull
   Anterior tibia without apical process, the spine weak and curved. Anterior tibia and tarsus not of unusual length. Hind basitarsus in male as long or longer than tibia, flattened, slender, attenuate. Female basitarsus swollen and elongate. Face convex and rather densely long, fine pilose, without stout mystax bristles. Male abdomen composed of 7 segments; female of 5 segments, with the remainder forming a tubular, flattened ovipositor. Third antennal segment long, slender and attenuate with a long microsegment and thick, short style. LEPTARTHRUS Stephens
3. Metanotal callosity with stiff pile or bristles. DICOLONUS Loew
   Metanotal callosity bare or micropubescent only 4
4. Antenna unusually elongate, usually 2 times as long as the head, and the third segment bearing 2 equally stout and conspicuous microsegments 5
   Antenna 1 to 1½ times as long as the head, or if of greater length there is only a single microsegment present . . . 7
5. Second antennal segment quite short and beadlike and only one-fourth to one-sixth as long as the first segment; microsegments of third antennal segment peculiarly constructed and unusually prominent 6
   Second antennal segment very little shorter than the first; microsegment of the third segment distinct but not prominent. Lower half of face gibbous and bearing dense, long, slender bristles; posterior femur with stout, tuberculate bristles ventrally. . . . . ECHTHODOPA Loew

6. Face unusually wide; the front and vertex, beginning opposite the antenna, are greatly expanded and divergent; apex of third antennal segment and apex of first microsegment without deep, conspicuous clefts. Hermannella, new genus
   Face approximately one-third of the head width or less; beginning below, the face is slightly convergent and this convergence continued at the same rate to the vertex. Apex of third antennal segment and first microsegment with deep clefts in which is received the attachment of the next succeeding segment . . . . . . Myelaphus Bigot
7. Fourth posterior cell closed and stalked 8
   Fourth posterior cell widely open 9
8. Head in frontal aspect as high as wide and therefore nearly circular; face narrow and its width not more than one-seventh the head width; third antennal segment slender; face nowhere prominent and only slightly produced below; anal cell open 8a
   Head in frontal aspect wider than high; face little less than one-fourth the head width; third antennal segment much swollen and dilated. Anal cell closed and stalked. Pritchardia Stuardo
8a. Disc of scutellum bare, or with 1 or 2 minute hairs. Female terminalia enclosed by a cylindroid jacket with wide terminal orifices. Male terminalia rotate, bearing a long, medial (dorsal), stout prong from the hypandrium. Aplestobroma Hull
   Disc of scutellum with long, bushy pile. Female unknown. Male terminalia rather similar to *Aplestobroma* Hull. Pegolabrus, new genus
9. Head wider than high. Front and antennal base more or less swollen, leaving the face usually concave, more rarely a little convex. Third antennal segment often with bristles (*Dioctria* Meigen *sensu lato*) 10
   Head circular, no wider than high. Face exceptionally narrow, one-tenth of head width and divergent below. Face pile exceptionally long and straight and stiff and confined to a narrow, medial row. Fourth posterior cell widely open; male with terminalia similar to *Aplestobroma* Hull, the dorsal (inverted) prong much wider. Female unknown . . . . Broticosia Hull
10. Third antennal segment bearing 2 long microsegments, together nearly as long as the third segment and with apical spine. Male terminalia large, obtuse, clublike. Hind metatarsus swollen . . Nerterhaptomenus Hardy
   Third antennal segment with a single, obtuse, spoon-shaped microsegment and enclosed spine. Male terminalia short, inconspicuous 11
11. Hind tibia slender, elongate and with the apical part enlarged; hind metatarsus enlarged, elongate, or both, and longer than second and fourth segments together. Scutellum more or less convex and bearing short, recumbent, discal and marginal pile. Anterior branch of third vein reaching wing margin at or below the apex of the wing. Wings elongate, narrow, with the axillary cell and alula greatly reduced in size 12
   Hind tibia normal, in some species slightly narrowed on the basal half; hind metatarsus normal and subequal in length to second and fourth segments together. Scutellum more or less flattened, bare on the disc, with long, erect, marginal hairs. Anterior branch of third vein reaching anterior margin before the apex of the wing. Wings normal or very broad, the axillary cell and alula well developed 13
12. First antennal segment longer than the second, third of uniform width and the style about equal in diameter to the third segment. Face concave, the oral margin and antennal base more or less prominent . Dioctria Meigen
   First and second antennal segments nearly equal in length, third narrow basally and quite broad in the middle, the style minute. Face in profile slightly convex, the oral margin and the antennal base not at all prominent (subgenus of *Dioctria* Meigen). Nannodioctria Wilcox and Martin
13. Scutellum bare of pile. Hind femur and tibia and usually the middle and anterior ones with numerous, small, setigerous tubercles below (subgenus of *Dioctria* Meigen). Eudioctria Wilcox and Martin
   Scutellum with quite numerous, long, erect, marginal hairs. Femur and tibia without setigerous tubercles (subgenus of *Dioctria* Meigen) . . Metadioctria Wilcox and Martin

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Genus *Dioctria* Meigen

Figures 2, 9, 397, 403, 802, 811, 1633, 1634, 1885 1936, 1963, 2020

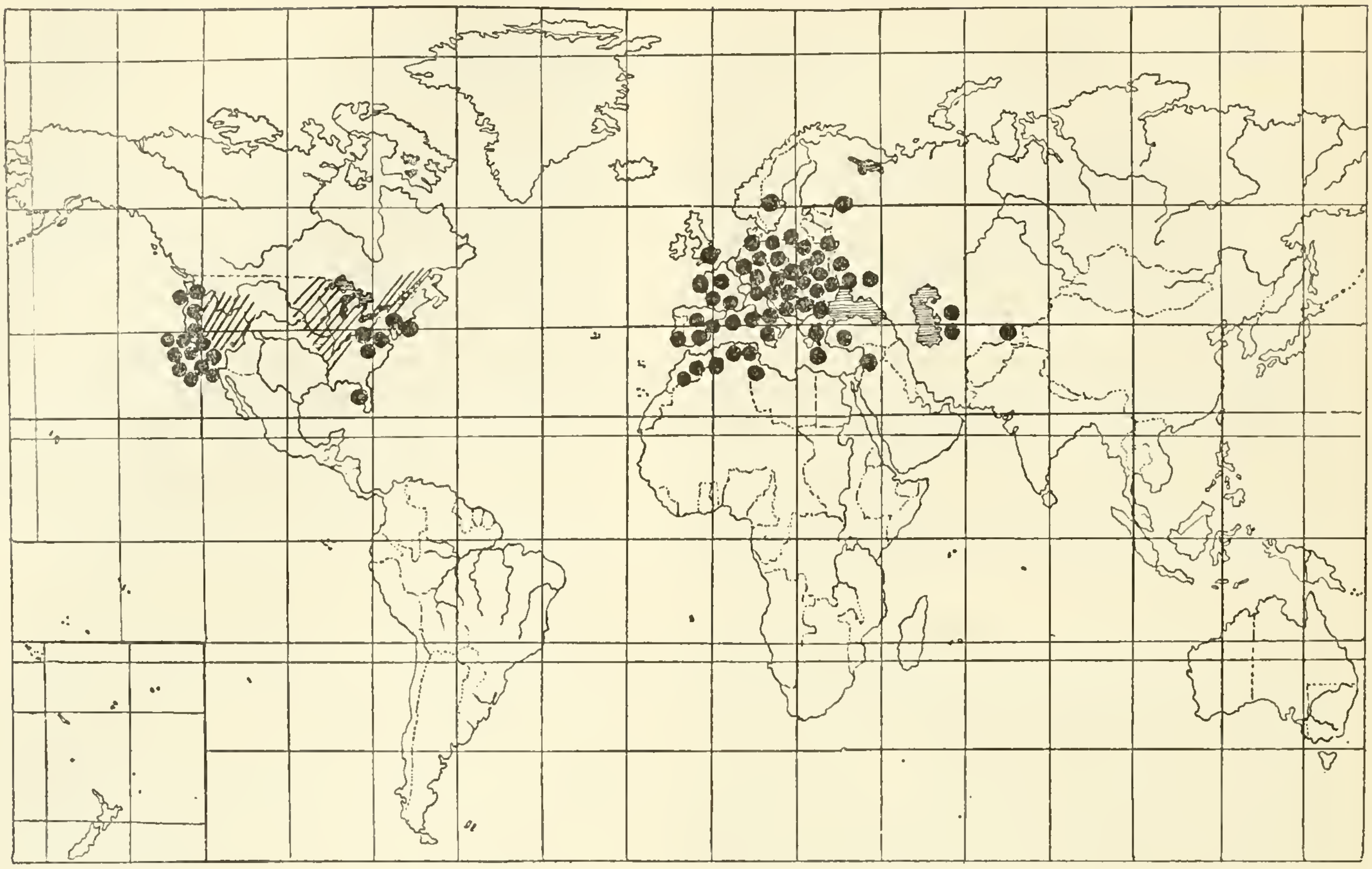
Dioctria Meigen, Mag. Insektenkunde, vol. 2, p. 270, 1803. Type of genus: *Asilus oelandicus* Linné, 1758. Designated by Latreille (1810) the first of 3 species.

Methylla Hansen, Naturh. Tidsskr., ser. 3, vol. 14, pp. 145, 198, 1883. Type of genus: *Dioctria humeralis* Zeller, 1840, by original designation.

Dioctria has 3 subgenera, *Eudioctria* Wilcox and Martin, *Metadioctria* Wilcox and Martin, *Nannodioctria* Wilcox and Martin.

Small or medium size flies, characterized by the elongate, comparatively slender abdomen, in the female without spines or acanthophorites on the ninth tergite; male terminalia not rotate and epandrium without forceps. The abdomen is sometimes slightly clavate and tends to be corrugate on the dorsal aspect of the basal segments. Face almost plane, or slightly bulbous below, or with only the middle portion plane. Face, except in a few instances, characteristically protuberant at and just below the base of the antenna. Antenna attached usually near the vertex; the front, therefore, short; antenna elongate, slender, with apical, spoon-shaped microsegment enclosing a spine. All cells of the wing open, usually widely open. Length 8 to 20 mm.

Head, lateral aspect: Face plane, level with the eye in the middle of the face, gently rounded and slightly protuberant on the lower third and rather strongly protuberant on the upper third. Occiput short, a little more prominent below, becoming a little thicker towards the middle of the head; pile stiff and bristles moderately abundant below; stout bristles begin at the lower third, curve slightly forward and consist of 25 or more pairs, some of which are rather strongly curved. Proboscis stout, strongly swollen at the base, pointed apically, rounded and curved on the ventral aspect, subquadrate on the apical third which bears a conspicuous tuft of stiff dorsal pile. Ventral surface with a deep longitudinal fissure throughout its length; base below with a tuft of stiff bristles. Proboscis usually directed forward. Palpus clearly of two segments, the first segment hemicylindroid, but distinctly fused; second segment not porate, cylindrical with numerous stout bristles. Antenna usually attached at or above the upper eighth of the head, or in the subgenus *Eudioctria* Wilcox and Martin, attached just above the upper third. Antenna elongate, distinctly longer than the head; seg-



Text-Figure 8.—Pattern of distribution of the genus *Dioctria* Meigen.

ment one is longer than the second; third segment, including microsegment, as long or longer than the first two segments combined and of approximately the same width. Third segment subcylindrical, slightly narrowed at the apex, and bearing a long, wide apically rounded, pubescent, spoon-shaped microsegment, which carries a distinct basal spine. First two segments with numerous, appressed, stiff, rather long bristles both on the dorsal and ventrolateral surfaces; third segment with several appressed, dorsal bristles. In some species the first two segments may be nearly equal in length; in subgenus *Eudioctria* the antennae are still elongate, though all segments are reduced, including the third.

Head, anterior aspect: Face between antennae one-fourth the head width and slightly divergent below; subepistomal area large, slightly oblique or rarely small and strongly oblique. Face micropubescent laterally and below, but often bare beneath the antenna and in the middle of the face; pile absent and bristles confined to a rounded cluster covering the lower facial eminence, containing more than 20 stout, curved bristles, or with only a single transverse row of 4 pairs. Front generally very short, polished and bare, in *Eudioctria* pollinose with a conspicuous row of rather long slender bristles along the ocular margin. Vertex moderately excavated; ocellar protuberance high with steep sides, and a few minute, short, anteriorly directed bristles confined to the posterior region, or in *Eudioctria* with 4 or 5 pairs of long, slender, central bristles. Eye facets at most slightly enlarged.

Thorax: Low, gently curved, shining, often with pubescent vittae. Pleuron chiefly shining, with spots or diagonal bands of appressed pubescence. Pile of mesonotum rather scanty, erect and bristly; acrostical band present; dorsocentral bristles moderately distinct but rarely long. In the type of the genus the following complement of long, slender bristles present: One notopleural, 7 supraalar, 8 to 10 short postalar, no scutellar bristles. Scutellum flat, its margin often with a wide band of fine bristly hair and similar discal hair or disc bare. The margin almost without pile in *Dioctria albius.* In the type of genus the pleuron anteroventrally has a tuft of long stout curved bristles; in *Eudioctria* with pile only. Pronotal collar sometimes with bristles. Typically the posterior margin of the mesopleuron has a vertical row of weak bristles; metapleuron with 6, 7, or 8 bristles; remainder of pleura apilose. Metanotal callosity pubescent only. Ventral and lateral metasternum with pile; postmetacoxal area membranous.

Legs: All the femora moderately lengthened, the hind femur not quite twice as wide distally as basally.

The legs bear dense, short, appressed setae dorsally. The ventral surfaces of the femora and tibiae with a dense, erect fringe of moderately long pile. Tibial setae brush restricted to apex. Bristles are comparatively few, more numerous on the middle and hind legs, and are short but rather stout. The type of genus bears the following complement of bristles: hind femur with 2 or 3 lateral bristles near the base, 2 to 4 others medially on the basal half, apex with 1 lateral, 1 dorsal, and 2 medial bristles. This tibia bears 5 dorsolateral, 5 to 7 dorsal; apex with 2 dorsal, 2 lateral, 2 or 3 medial and 5 or 6 ventral bristles. Middle femur with 3 or 4 fine, short bristles posteriorly, 4 at the apex and 10 or more short bristles laterally. This tibia bears 4 anterior, 5 or 6 posterior and 5 dorsal bristles, all short and stout. Anterior femur with posteriorly a bristle in the middle, a posterior cluster of 3 at the outer third and the same apical bristles as the middle femur; this tibia bears 6 short dorsal, 6 longer posterior ones, 4 slender ventral bristles. Protibial apex without spine. Claws sharp; pulvillus may be half as long as claws or well developed. Empodium long.

Wings: Marginal cell and all posterior cells widely open; second basal cell ends in three veins. Anal cell widely open in the sixteen species before me. Alula quite short, the ambient vein complete.

Abdomen: The abdomen is elongate, rather slender subbasally, often subclavate, characteristically bare and polished, with very short, fine, suberect, scanty pile. Males with 8 tergites, the eighth only one-fifth as long as the seventh. Females with 8 tergites, the last one-third as long as the seventh. Segments 2 to 5 distinctly elongate and each longer than wide. Bristles absent, except on the first tergite, where they are weak. Male terminalia moderately large, not rotate, the epandrium undivided, but often as in the subgenus *Eudioctria* Wilcox and Martin, with a deep, wide or narrow cleft and lateral lobes, or sometimes with apical tooth or hair tuft, and with short, lateral spur. Hypandrium very short; gonopod large, rounded and convex and generally lobate at apex. Female terminalia very short, divided dorsally and without spines.

The flies of *Dioctria* are weak flying species that characteristically associate with the leaves of low undergrowth and shrubs or herbs and are often about alders.

The flies of the genus *Dioctria*, sensu lato, are Holarctic in distribution. Some American species are dimorphic. The introduced European species *Dioctria baumhaueri* Meigen is found in the eastern United States. There is a dense concentration of species in eastern and central Europe, and on the Pacific coast of the United States. Probably the three species described from each of the Neotropical and Ethiopian regions and certainly the two Australian species belong elsewhere; *Dioctria tenuis* Walker appears to belong to the genus *Mirolestes* Curran. The Nearctic species have been reviewed by Wilcox and Martin (1941).

Distribution: Nearctic: *Dioctria albicornis* Wilcox and Martin (1941); *albius* Walker (1849), *albius aurifacies* Wilcox and Martin (1941), *albius xanthopennis* Wilcox and Martin (1941); *banksi* Johnson (1918) [=*longicornis* Banks (1917), not Meigen], *banksi tibialis* Wilcox and Martin (1941); *beameri* Wilcox and Martin (1941); *brevis* Banks (1917); *doanei* Melander (1923); *henshawi* Johnson (1918) [=*flavipes* Banks (1917), not Meigen]; *media* Banks (1917); *monrovia* Wilcox and Martin (1941); *nitida* Williston (1884), *nitida denuda* Wilcox and Martin (1941); *parvula* Coquillett (1893); *pleuralis* Banks (1917); *propinqua* Bromley (1924); *pusio* Osten Sacken (1887); *resplendens* Loew (1872); *rubida* Coquillett (1893), *rubida nigripilosa* Wilcox and Martin (1941), *rubida atripes* Wilcox and Martin (1941); *sackeni* Williston (1884), *sackeni rivalis* Melander (1923); *seminole* Bromley (1924); *vera* Back (1909); *vertebrata* Cole (1919).

Neotropical (allocation dubious): *Dioctria nigrita* Fabricius (1805); *tenuis* Walker (1851); *vicina* Macquart (1838).

Palaearctic: *Dioctria abdominalis* Becker (1923); *arthritica* Loew (1871); *atricapilla* Meigen (1804) [=*atrata* Wiedeman in Meigen (1820), *falleni* Meigen (1820), *fuscipennis* Fallen (1814), *fuscipes* Gimmerthal (1847), *geniculata* Meigen (1820), *nigripes* Meigen (1804)], *atricapilla rufimana* Loew (1840); *atrorubens* Séguy (1930); *baumhaueri* Meigen (1820); *berlandi* Séguy (1927); *bicincta* Meigen (1820) [= ?*annulata* Meigen (1820), *infuscata* Meigen (1820)]; *bigoti* Costa (1884); *caesia* Pallas in Wiedemann (1818); *calceata* Meigen (1820), *calceata nigriventris* Strobl (1902); *cavifrons* Enderlein (1934); *claripennis* Villeneuve (1908); *conspicua* Becker (1923); *contraria* Becker (1923); *cothurnata* Meigen (1820) [=*meigeni* Shuckard (1841), *umbellatarum* Meigen (1820)]; *cretensis* Becker (1923); *dispar* Loew (1871); *flavicincta* Roeder (1884); *flavipennis* Meigen (1820) [=*aurifrons* Meigen (1820)]; *fuscipes* Macquart (1834) [=*melanopa* Egger (1859), *melanopogon* Schiner (1862)]; *gagates* Wiedemann in Meigen (1820) [=*semihyalina* Wiedemann in Meigen (1820), *oedipus* Loew (1869)], *gagates striatipes* Becker (1923); *gracilis* Meigen (1820) [=*hyalipennis* Meigen (1820), not Fabricius, *concinna* Costa (1883)]; *harcyniae* Loew (1844); *humeralis* Zeller (1840), *hyalipennis* Fabricius (1794) [=*anomala* Macquart (1826), *flavipes* Meigen (1804), *frontalis* Meigen (1804), not Fabricius, *varipes* Meigen (1820)]; *kowarzi* Frivaldszky (1877); *lata* Loew (1853); *lateralis* Meigen (1804) [=*haemorrhoidalis* Meigen (1820), not Fabricius]; *lenta* Becker (1923); *linearis* Fabricius (1787), [=*linearis* Meigen (1830), *cingulata* Zetterstedt (1849)]; *liturata* Loew (1873); *longicornis* Meigen (1820) [=*frontalis* Panzer (1797)]; *lugens* Loew (1873); *meridionalis* Bezzi (1898); *meyeri* Nowicki (1867), *meyeri nigripes* Engel (1930); *minuta* Pallas in Wiedemann (1818) [=*maculata* Wiedemann (1818)]; *mixta* Becker (1923); *navasi* Séguy (1929); *nigribarba* Lowe (1871); *notha* Séguy (1941); *ochrifacies* Becker (1906); *oelandica* Linné (1758) [=*nigra* Latreille (1804)], *oelandica limbata* Loew (1840); *podagrica*

Schrank (1781); *pollinosa* Loew (1870); *puerilis* Becker (1923); *rakanensis* Matsumura (1916); *rufa* Strobl (1906); *rufipes* De Géer (1776) [=*flavipes* Fallen (1814), *frontalis* Fabricius (1794), *pratensis* Olivier (1789), *venosa* Fourcroy (1785)]; *?rufipes* Scopoli (1763) [=*ruficornis* Olivier (1789)]; *rufithorax* Loew (1853); *rungsi* Timon-David (1951); *samarana* Becker (1923); *segmentaria* Becker (1923); *speculifrons* Wiedemann in Meigen (1820), *speculifrons gagatoides* Strobl (1906); *strandi* Duda (1940); *sudentica* Duda (1940); *valida* Loew (1856); *wiedemanni* Meigen (1820).

Ethiopian (allocation dubious): *Dioctria ?flavipennis* Macquart (1838); *morio* Fabricius (1794); *stigmaticans* Fabricius (1805).

Australian (allocation dubious): *Dioctria conopsoides* Fabricius (1775).

Locality unknown: *Dioctria horsleyi* Walker (1851).

Ricardo (1912), states that *Dioctria horsleyi* cannot be a *Dioctria* as the foretibia has a spine, but she makes no suggestion of where to place it. It is left here pending further study.

Immature stages of European species of *Dioctria* are well known and at least 5 species have been dealt with by Beling (1882), Brauer (1883), Lundbeck (1908), de Meijere (1916), and Melin (1923).

The species of the three subgenera proposed for Nearctic species by Wilcox and Martin have been included under *Dioctria.* The relation of Palaearctic species to these subgenera is unknown.

Subgenus *Eudioctria* Wilcox and Martin

Eudioctria Wilcox and Martin, Ent. Americana, vol. 21, p. 8, 1941. Type of subgenus: *Dioctria albius* Walker, 1849, by original designation.

Distinguished by the flat and bare scutellum and stout microtuberculate bristles on the ventral surface of the hind femur and tibia. Species tend to be dimorphic. Found in the eastern and Pacific Coast states but not thus far in the middle western states. Eleven species included.

Subgenus *Metadioctria* Wilcox and Martin

Metadioctria Wilcox and Martin, Ent. Americana, vol. 21, p. 19, 1941. Type of subgenus: *Dioctria rubida* Coquillett, 1893, by original designation.

Characterized by the long, erect hairs along the scutellar margin; scutellum flattened; femur and tibia lack setigerous bristles. Hind tibia and metatarsus normal, the latter subequal to the length of segments two and three combined. Two species included.

Subgenus *Nannodioctria* Wilcox and Martin

Neodioctria Wilcox and Martin, Ent. Americana, vol. 21, p. 7, 1941. Type of subgenus: *Neodioctria albicornis* Wilcox and Martin, 1941, by original designation. Preoccupied by Asilidae Ricardo, 1918.

Nannodioctria Wilcox and Martin, Bull Brooklyn Ent. Soc., vol. 37, p. 35, 1942. Change of name.

First and second antennal segments nearly equal in length, the third narrow basally and quite broad in the middle, its microsegment minute; face profile slightly convex, the epistomal area and antennal base not prominent. One species known.

Genus *Echthodopa* Loew

FIGURES 1, 404, 803, 812

Echthodopa Loew, Berliner Ent. Zeitschr., vol. 10, p. 16, 1866. Type of genus *Echthodopa pubera* Loew, 1866, by monotypy.

Echthopoda Loew, Beschreibungen europäischen Dipteren, vol. 2, p. 78. 1871. Author's emendation.

Flies of medium size. Distinguished from *Dioctria* Meigen chiefly by the numerous, strong bristles on the anterior surface of the middle femur and the lateral surface of the hind femur, together with the dense tuft of bristles or bristly hairs on the lower end and elevated third of the face. The hind femur and middle femur are rather stout; the pile of the legs is dense and fine; the mesonotal bristles are weakly differentiated and the occiput, pronotum and scutellum bear only stiff hairs. Palpus with a distinct vestige of the antepenultimate segment. Length 12 to 16 mm.

Head, lateral aspect: The head is of medium length with the face short and gently elevated on the lower third. The occiput is scarcely visible on the upper portion, due to the posterior encroachment of the eye, but is prominent below on account of the anterior recession of the eye. Occipital pile abundant, long and rather fine, the dorsal elements proclinate, and coarse. Bristles absent. Proboscis of moderate length and longer than the face, stout basally with well developed medial dorsal ridge, the apex bluntly pointed, its halves slightly divergent and the basal half with numerous, long, fine hairs ventrally. Palpus with the ultimate segment spindlelike, not porate, carrying bristly hairs on all sides and attached to one side of the apex of the penultimate segment. This penultimate segment, which is bowl-shaped, is separated by a distinct basal constriction from a rounded, dorsally fused, antepenultimate segment. Basal segments of palpus with long, abundant pile. Antenna attached at the upper fourth of the head, elongate and slender, the first two segments of nearly equal length, the third segment a little longer than the combined length of the first two and bearing two stout microsegments. The distal microsegment is the longer, is spoon-shaped and bears a dorsally exposed spine. The medioventral surface of the third segment has an oval patch of modified pubescence similar to that found in *Dioctria.*

Head, anterior aspect: Face densely pubescent, pile concentrated on the lower elevated portion and consisting of a dense, broad patch of long, slender bristles or bristly hairs. Subepistomal area large, pubescent, with medial depression. The face below antenna is moderately wide and slightly divergent below. Front sunken, not pubescent, with stiff, long hairs laterally. Vertex moderately excavated, the ocellar protuberance prominent, with vertical sides. Anterior ocellus enlarged and only stiff, ocellar pile present. The anterior eye facets slightly enlarged.

Thorax: The thorax shining, without pollen, except on the postcallus and immediately before the scutellum and on the upper half of the pleuron, where only isolated patches of pollen occur, the largest being on the upper half of the mesopleuron, and with a more or less continuous, narrow, oblique band of pollen from the anterior sternopleuron to the posterior hypopleuron. Mesonotum of moderate height, with dense, suberect pile and poorly differentiated bristles. The following complement of bristles present: 5 notopleural, 6 to 8 supraalar, 5 postcallar, no scutellar, and 4 or 5 quite weak postdorsocentral bristles. Scutellum convex, with long pile and stiff, marginal hairs. The propleuron and the pronotal collar bear dense, long, stiff hairs, without bristles. Mesopleuron, the anterior and upper posterior sternopleuron and the posterior hypopleuron with abundant, long, stiff pile. Metapleuron swollen, with long pile and 5 or 6 quite long, weak, bristly hairs. Metanotal callosity pollinose only. Basalare pubescent only. Tegula with short bristles. Slopes of metasternum pilose. Postmetacoxal area membranous.

Legs: Hind femur distinctly stout and narrowed only at the immediate base. Pile of femur on all sides dense, fine, long and erect; the ventral fringe is conspicuous, the lateral surface with 12 to 18 stout microtuberculate bristles, the dorsal half of the apex with a circlet of 8 bristles. The hind tibia bears 6 dorsal and 6 dorsolateral bristles and 5 stouter, ventrolateral bristles; the apex bears 15 bristles, most of them ventral; medial and ventral surfaces with dense appressed setae on the apical half. Anterior and midfemur both stout with long, fine pile. Bristles are confined to the anterior surface and outer portion of the middle femur, which area bears 12 stout bristles. Bristles on the anterior and middle tibia confined to a double dorsal row containing approximately 8 elements. Tarsal segments rather short, the basitarsus about twice as long as each succeeding segment. Claws sharp, strongly curved at the apex, pulvillus well developed. Empodium swollen at the base, reduced in length.

Wings: Marginal, all posterior cells and the anal cell widely open. Fourth posterior cell slightly narrowed, the third correspondingly widened. Small crossvein at the middle of the discal cell. Alula well developed; ambient vein complete. Wings without pattern, nearly hyaline.

Abdomen: Cylindroid, less wide than the mesonotum, 7 tergites present in the male, with a linear trace of the eighth; 8 are present in the female, the seventh not quite half as long as the sixth. Pile of abdomen abundant, stiff, more or less appressed; the side of the first tergite bears numerous quite weak bristles. Male terminalia large, conspicuous, not rotate. Epandrium quite large, convex, laterally extensive, fully cleft to the base, with proctiger small and recessed. Hypandrium forms a large broad curled protuberance turned slightly upward and enclosing the interior structures. The gonopod is largely enclosed by the epandrium. Female terminalia recessed, inconspicuous, without spines; its ventral plate is short and medially notched.

Immature stages unknown. The adults frequent low growing foliage at the edge of woodlands.

Distribution: Nearctic: *Echthodopa carolinensis* Bromley (1951); *formosa* Loew (1872); *pubera* Loew (1866).

Genus *Dicolonus* Loew

Figures 3, 406, 804, 813, 1658, 1803, 1879, 1960

Dicolonus Loew, Berliner Ent. Zeitschr., vol. 10, p. 32, 1866.
Type of genus: *Dicolonus simplex* Loew, 1866, by monotypy.

Small or medium size flies. Related to *Dioctria* Meigen and characterized by the short, dense, brushlike pile, the elongate, slender antenna, with its spoon-shaped microsegment, the short, robust tarsal segments, the absence of bristles, the dense mystax on a rounded, ventral, facial protuberance, and the short, blunt proboscis. From all other genera in the lower Dasypogoninae, it is separated by the hairy metanotal callosity. Female terminalia without spines. Length 10 to 15 mm.

Head, lateral aspect: Length greater than usual, with tumid occiput and moderately long face. The face is prominent on the upper portion and still more on the lower half where it extends as a conspicuous, rounded elevation. Middle of face not quite plane with the eye margin. The occiput is especially prominent below due to the anterior recession of the eye and the lower angle of the eye is comparatively sharp. Above, the occiput continues to be swollen but in profile is obliterated before reaching the vertex; its pile dense, coarse and long; bristles absent. The proboscis is exceptionally short, robust and blunt, the halves of the apex slightly divergent. More than half the ventral surface with numerous, long, fine hairs. The proboscis is directed forward, the apex blunt. Palpus clearly with a vestige of the antepenultimate segment, demarcated from the following segment; end segment not porate, robust, clavate with stout apical, lateral apical and medial bristles. Antenna longer than the head, slender, the first segment two or more times as long as the second, third a little longer than the combined length of the first two. The third segment bears a single elongate, oval, spoon-shaped microsegment carrying an enclosed spine. There is some trace of a shorter, second, but fused, microsegment lying between the third segment and its spoon-shaped apical segment. Like *Dioctria* the third antennal segment has an elongate ventral patch of differentiated pubescence.

Head, anterior aspect: Face for the most part pubescent but with some nearly bare areas, one of them located beneath the antenna. The prominent and swollen upper portion of the face has a tuft of dense, long, fine pile and the lower elevated portion of the face has still longer, more dense, slender bristles or bristly pile. Subepistomal area prominent, sloping, not excavated, bare and with medial carina. Front short, due to the position of the antenna attached at the upper seventh of the head. Front nonpubescent with long bristly hairs laterally, the vertex is scarcely excavated, the ocellar protuberance quite low with vertical sides and all the ocelli enlarged. Between the ocelli there are long stiff hairs.

Thorax: Mesonotum comparatively low and uniformly convex anteriorly and posteriorly, shining, without pubescence but with dense, coarse, rather long, subappressed pile. Bristles absent. Scutellum convex with long coarse erect, discal and marginal pile. Propleuron and collar densely long pilose, without bristles. Mesopleuron with long pile dorsally and similar but less abundant pile present on the posterior hypopleuron, anterior and posterior sternopleuron. The swollen metapleuron with abundant pile and a number of long bristly hairs. Much of the pleuron is polished and bare, its pubescence chiefly restricted to the metapleuron and posterior hypopleuron with small patches elsewhere. Metanotal callosity with a patch of coarse pile in addition to pubescence. Squamae with a long fringe, slopes of the metasternum pilose, postmetacoxal area membranous.

Legs: All the femora moderately stout, especially the middle and hind pairs and densely covered with long, fine pile on all surfaces. Bristles absent. On the tibiae there are on all surfaces rows of quite long, very slender, bristly hairs. On the tarsi there are some distinct though slender bristles which become stouter on the lateral and medial margins. Claws sharp, curved from the base; pulvillus well developed. Empodium reduced and strongly swollen at the base. The tarsal segments are unusually short, the three intermediate segments monilliform, the basal segments not quite as long as the two succeeding segments.

Wings: Marginal, all the posterior cells and the anal cell widely open. Fourth posterior cell slightly narrowed, the middle end vein of the second basal cell present. Alula short. Ambient vein complete.

Abdomen: Broad, nearly or quite as wide as the thorax in the females. Slightly less wide in the males. Seven tergites present in the male with a linear trace of the eighth. In the female eight tergites present, with the seventh half as long as the sixth. Abdominal pile abundant, coarse, erect and brushlike laterally, appressed dorsally. Male terminalia not or only slightly rotate to the left. The epandrium wide, thin, uncleft and at most very shallowly excavated, and bearing long, flat, apically rounded, sharp-edged, lateral protuberances. Gonopod largely concealed but with two prominent, acutely pointed, narrow protuberances. Hypandrium short, narrow, broad at base. Female terminalia short, without terminal spines, the basal plate laterally with a stout, blunt, downward turned protuberance. There is considerable similarity of both the male and female terminalia to those of *Myelaphus* Bigot.

Distribution: Nearctic. *Dicolonus simplex* Loew (1866); *sparsipilosum* Back (1909).

Palaearctic. *Dicolonus argentatus* Matsumura (1916).

Genus *Myelaphus* Bigot

FIGURES 29A, 29B, 398, 844, 853, 1677, 1887, 1948

Myelaphus Bigot, Bull. Soc. Ent. France, ser. 6, vol. 2, p. xci, 1882. Type of genus: *Myelaphus melas* Bigot, 1882, by monotypy.

Myielaphus Kertész, Catalogus dipterorum . . ., vol. 4, p. 96, 1909. Emendation.

Peculiar flies, characterized by the subglobular head, the dorsal protuberance of the face and front on which the extremely long antenna is set. The third antennal segment bears 2 peculiar microsegments, the first short but with 2 divergent, apical, lappetlike extensions, the third longer and attached between these lappets. Mesonotum rather humpbacked and convex, densely appressed pilose and without lateral bristles except for 2 weak, rather short, notopleural bristles. The head is set rather low on the thorax and the abdomen is drooping and these features tend to emphasize the humpbacked appearance. Length including antenna 12 to 14 mm.

Head, lateral aspect: The face is rather prominent, especially on the upper half; this extension involves the front also and constitutes a rounded, domelike protuberance bearing the antennae; these structures are directed strongly upward. The face just below the middle has a rounded, protuberant, transverse extension leaving the intervening area concave and the lowermost face strongly receding. The eye is unusually long, a little more narrow above and quite convex anteriorly; it is nearly plane on the upper half of the posterior profile, the lower half strongly convex due to a gradual anteroventral recession. The occiput is exceptionally thick in the middle and ventrally, and particularly toward the medial portion; it slopes rather gradually down to the eyes and is receding and obliterated dorsally. Pile of occiput moderately abundant, coarse and almost bristly in the middle though rather fine, scanty and not very long ventrally. Dorsally are a few, slender, proclinate, bristly hairs. The proboscis is swollen towards the base both in lateral and dorsal aspect; it is subcylindrical distally with a bluntly rounded apex; it carries a number of short, stiff hairs placed apically and in a ventrolateral row which extends over the entire outer third of its length. The subbasal ventral portion bears numerous fine, long hairs; dorsomedial ridge absent. The proboscis is directed horizontally forward and extends a short distance beyond the face. Palpus of 2 segments, the first segment excavated, the second not porate and set at a slight angle, short, more slender with apical bristles and with some stiff, dorsal lateral and medial hairs.

The antenna is attached on the swollen and rather protuberant upper face and front almost on a plane with the vertex; it is attached about one-fifth way down below the upper eye margin. The antenna is extraordinarily long and peculiar. The first segment is two to three times as long as the second segment. The third segment is more than twice the combined length of the first 2 segments and consists of a long, slender structure which is a little compressed laterally and with an annular base and is divided into 3 parts or subsegments. The third segment, without microsegment, is as long as the 2 terminal subsegments or may be longer. Each microsegment is inserted between a pair of winglike, lateral processes extending from the apex of the preceding section or portion of the third segment. Apex of each subsegment with coarse, dense, short pubescence.

Head, anterior aspect: The face is wide, slightly wider below, more or less shining with both transverse and longitudinal wrinkles, or fine impressed lines. There is very little micropubescence and such as is present is confined to the eye margin and lower face. Pile absent. Bristles restricted to 2 or 3 closely adjacent rows of moderately long, stout, pale, thickset elements situated transversely immediately above the epistoma. Subepistoma large, slightly oblique, concave. Cheeks short. The front is prominent, polished, largely bare with a tuft of short, stiff hairs in front of each antenna. Anterior half of front swollen and protuberant. Eye margin with 7 anteriorly directed, somewhat appressed bristles, 4 of which are quite stout. The vertex is slightly narrowed but not conspicuously. Ocellarium large, wide and of moderate height with large ocelli and a row of 3 or 4 short bristles or bristly hairs on each side between the ocelli.

Thorax: The thorax is prominent and moderately arched, uniformly from front to rear and rather densely beset with flat appressed, short, sharp, undifferentiated setae, each with a microtubercle at the base. There are no bristles anywhere on the thorax. A few erect hairs are present on the postalar callosity, some sparse, appressed setae on the mesopleuron, sternopleuron, hypopleuron and the pronotum and metapleuron with a few fine, long hairs more numerous on the former. Scutellum thick and obtusely convex with scattered, appressed setae. Prosternum fully dissociated. Postmetacoxal area membranous, lateral metasternum with long, fine hairs.

Legs: All the femora are stout, the hind pair a little swollen gradually on the distal half. The first 4 femora are a little swollen on the basal half and quite stout distally. All the legs have rather abundant, fine, appressed setae throughout. Hind femur on the basal third with a doubled and partly trebled row of quite short but very stout, spinous bristles or short spines; there may be at least 20 such. Hind tibia with very short, scanty, spinous bristles situated chiefly distally but with a few on the basal half; there are 4 dorsolaterally and 4 to 6 ventral elements. The hind tibia are stout throughout but also gradually become widened distally. The basitarsus is unusually robust and rather short, yet is nearly as long as the next 3 segments, which are quite stout and short. Apex of hind tibia with 14 short bristles, almost all of them on the ventral half. Middle femur with 8 to 10 moderately long, stout, posteroventral bristles on the basal half, a few short ventral bristles distally and with a characteristic cluster of rather dense, curved, sharp spines or spinous bristles anteriorly near the base. Those of the cluster which are more distal are shorter in length. Middle tibia with a ventral row of 5 exceptionally slender bristles or bristly hairs and 6 or 7 short, posterior bristles, a like number of still shorter posterodorsal bristles.

Anterior femur with 7 or 8 moderately long, coarse, ventral bristles on the basal half; its tibia is rather similar to the middle tibia and without spine at apex. Anterior basitarsus, like all the other basitarsi, is quite short and robust and equals the combined length of the next 2 segments. Claws stout, sharp, bent only at apex; pulvillus large, broad; the empodium sharp, bladelike, strongly swollen at the base.

Wings: The wings are generally strongly tinged with brown or bluish black. Marginal cell widely open; the second submarginal cell is rather wide at base but arises as an arch and often has a spur vein extended towards the base. The anterior branch of the third vein curves forward to end just above the wing apex; the posterior branch ends a considerable distance behind the apex and the first posterior cell is narrowed but open. Third posterior cell either narrowly open or closed with a short stalk. Anal cell closed and stalked. Posterior cross vein present, the nearly rectangular anterior crossvein enters the discal cell at or just beyond the middle. All the veins are exceptionally stout; the ambient vein is complete; alula well developed but hemicircular; entire wing villose.

Abdomen: The first segment is a little wider and comparatively short. It is nearly or possibly equally wide as the mesonotum. Sides of abdomen parallel through most of its length or nearly, therefore the abdomen is comparatively broad and robust. It is shining, with scanty, fine appressed, setate pile, a little more abundant on the terminal segment. Sides of first segment with 2 or 3 pairs of slender bristles and a little long, coarse hair. Males with 8 segments but the eighth segment reduced to a short, dorsal, liplike protrusion from beneath the quite short seventh tergite. Females with 8 tergites, but the last two are short. Male terminalia moderately large and obtuse. The epandrium has a deep, almost circular sulcus which encloses the short, protruding proctiger and then turns downward and also inward toward the median line; the two portions do not meet. The posterior portion of the epandrium, therefore, is obtuse and downturned and reminds one of *Heteropogon* Loew. Hypandrium extremely short and almost concealed. Gonopod large, swollen, and widened towards the base, with a slender, terminal, hooked process and with a much longer, straight, pronglike dorsal process. Female with the terminalia very short, recessed within the posterior cavity, without spines. Eighth sternite with a prominent, thin, gently rounded, lateral, flaplike extension; and lying between these lateral flaps is a more narrow, pointed, sharp, pilose, submedial process divided posteriorly by a cleft.

Distribution: Nearctic: *Myelaphus lobicornis* Osten Sacken (1877); *melas* Bigot (1882); *rufus* Williston (1884).

Palaearctic. *Myelaphus dispar* Loew (1873); *jozanus* Matsumura (1916).

Hermannella, new genus

FIGURES 11, 421, 845, 854

Type of genus: *Hermannella engeli*, new species.

A rather small fly characterized by the unusually long head and the long, greatly flattened antenna carrying two wide, flattened microsegments. It appears to be related to *Scylaticus* Loew. It is distinguished from *Scylaticus* by the very short proboscis and unusual antenna; and from *Myelaphus* Bigot by the greatly widened vertex, as well as the not cleft microsegments. Length 12 mm. including antenna.

Head, lateral aspect: The head is unusually long and subglobular. The face rather long throughout its length, not quite straight in profile, but rather strongly retreating below the antenna. The eye is exceptionally long and strongly convex posteriorly as well as anteriorly. Occiput unusually tumid and thick throughout, following the eye in its curvature and with a slight thickening or bulge at the margin of the eye. Pile of occiput stiff, short and scanty through the middle, somewhat longer above and absent ventrally; all this pile partakes of the character of weak bristles. Proboscis exceptionally short, not or scarcely projecting beyond the face. It is dorsoventrally compressed but with bluntly rounded apex, and bears no ventral basal pile and only 2 or 3 fine hairs ventrally near the middle. Palpus short, cylindrical, with some apical bristly hair and the second segment more slender, distinctly attenuate, and apparently without pile or bristles. A small apical pore appears to be present. The basal segment is hemicylindrical and excavated at least on its basal half. Antenna attached at the upper sixth of the head and unusually elongate. The first segment is 3½ times as long as the short beadlike second segment and is somewhat swollen below and subapically. The third segment is subquadrate basally with sharply angular margin dorsally and becomes quite strongly compressed laterally especially along the dorsal margin. The ventral margin remains a little wider. The third segment is gently widened on the apical half, somewhat curved upward and laterally. If the apical subsegments are excluded, then the third segment is 2½ times as long as the first segment. The third segment bears two compressed subsegments, each of about equal length and height. The second subsegment has a lateral apical notch and between the ventral and lower portion of this notch there is a minute spine. First antennal segment with numerous, long stiff hairs ventrally, shorter ones laterally and dorsally, the second segment with a few minute lateral and dorsal setae.

Head, anterior aspect: The face below the antenna is a little less than one-third the head width; it has parallel sides. The front is quite strongly divergent, the width at vertex more than two-thirds the head width. Subepistomal area small, horizontal, concave. Face micropubescent, everywhere covered, except at the immediate eye margin, with moderately long, stiff pile; bristles absent. Front extremely wide but short; on the lateral third there is a conspicuous tuft of moderately long bristly hairs. The vertex is not excavated, the ocellarium large, wide, moderately high and bearing three or four pairs of slender bristles across the middle. Anterior eye facets slightly enlarged.

Thorax: The thorax is pollinose, the mesonotum of moderate height. Pile of mesonotum abundant, fine and erect and continuous across the mesonotum. Acrosticals are not or very poorly differentiated, dorsocentral bristles absent; humerus with stiff pile. The lateral mesonotum has the following complement of short, weak, slender bristles: 2 notopleural, 2 supra-alar, 2 postalar; the strongly flattened scutellum with 6 pairs of comparatively short, stiff hairs; the somewhat wrinkled scutellar disc is without pile. The propleuron has only scanty, stiff hairs ventrally and weak bristly hairs posterolaterally; the anterior collar has 4 or 5 pairs of moderately stout bristles; the sternopleuron, pteropleuron and hypopleuron apilose; metapleuron with a vertical row of 5 or 6 short bristles. The metanotal slopes are micropubescent only; lateral metasternum long pilose, the ventral metasternum without pile, the postmetacoxal area membranous; basalare with fine long hairs.

Legs: The legs are densely, coarsely appressed setate, dorsally and laterally on the femora. All the femora are stout without being thickened. On the hind femur is the following complement of bristles: 5 or 6 weak slender lateral, 7 or 8 weak ventrolateral, and some short weak ventromedial; the hind tibia has 8 short, weak dorsal bristles, 5 similar lateral, and 3 to 5 similar ventrolateral. The middle femur has 3 slender bristles posteroapically, its tibia has 5 or 6 slender bristly hairs dorsally and 7 or 8 equally slender but longer elements posteriorly, besides 3 or 4 short bristly hairs anteroventrally. Anterior tibia similar to the middle tibia; the dorsal and posteroventral bristles as weak or more weakly developed and lacking an apical spine; the anterior femora with only short stiff pile. Anterior basitarsus fully as long as the next 3 segments; claws sharp; the pulvillus well developed; the empodium long and slender.

Wings: Marginal cell widely open, the anterior branch of the third vein is sinuous or sigmoid, ending just before the wing apex. First and second posterior cells widely open, fourth open but strongly narrowed, anal cell closed with a short stalk; the alula short and hemicircular in outline; ambient vein complete.

Abdomen: The abdomen is comparatively robust, not quite as wide as the mesonotum and slightly narrowed at the end of the second tergite. There are 7 tergites in the male, the seventh is two-thirds as long as the sixth. Pile of the abdomen rather scanty, subappressed and setate but long and abundant on the sides of the first and second and to a lesser extent on the third tergite. Male terminalia rather short, rotate one-half, the hypandrium short.

I have seen only a male, and have placed the species in the Dioctrini provisionally. Should the females prove to have spiny acanthophorites, this genus will fall within the Dasypogonini.

Distribution: Ethiopian: *Hermannella engeli*, new species. From Rhodesia.

Hermannella engeli, new species

Rather small, dark reddish brown flies with very short pile. Readily recognized by the peculiar antenna. The first antennal segment is more than three times the length of the minute, second segment. The third segment, with microsegments excluded, is about 2½ times the length of the first segment and it bears 2 wide, conspicuous microsegments flattened and each of about equal length and breadth. Pile of head and thorax pale. Length 12 mm. including antenna.

Type. Male, Rhodesia. In the collections of the British Museum (Natural History). This individual bore the name *Myielaphus pardalinus* Engel, which is apparently a manuscript name as I can find no evidence that it has been published. I take pleasure in naming the species in honor of Dr. Engel and of the monumental and valuable studies of Palaearctic and Ethiopian Diptera which he completed.

Genus *Nerterhaptomenus* Hardy

FIGURES 2518A–E, 2521

Nerterhaptomenus Hardy, Proc. Linnean Soc. New South Wales, vol. 54, p. 359, 1929. Type of genus: *Nerterhaptomenus morus*, 1929, by Monotypy.

I was unable to see the type, and, therefore, quote the original description:

> A brownish species with the head, pronotum, pleura, coxae, and venter coloured ashy grey. The antennae have five clearly defined segments, the third long, the fourth shorter than the fifth, at the apex of which is a small spine. The face has rather scanty white bristles forming a moustache, but it is without an apparent tubercle. The bristles on the frons and antennae are mostly black; those elsewhere and the hairs are white, including the postoculars and the beard.
>
> The thorax has a black area near the head, and this continues as two black median stripes that do not extend beyond the transverse suture; on each side of this marking is a large black spot. The bristles of the thorax are weak, but the two white presutural, one supra-alar, and one post-alar are detected on each side. The dorsocentrals are not to be detected and the scutellum is bare. The metapleural bristles are well developed, but the hypopleurals are absent. The metanotum is bare and the metasternum is narrowly separated from the intermediate coxae. The prosternum is contiguous with the pronotum, being separated by a groove. The rather typical shaped plate adjacent to the anterior coxae can be traced in part, but contains a bridge comparable to that found in the *Ommatiini*.
>
> The second segment of the abdomen is short and about the same length as the third. The sixth, seventh, and eighth segments are black and strongly depressed in the female, and are of equal length. On the male the abdomen is somewhat club-shaped, as it swells out between the fifth and seventh segments. The ninth tergite is emarginate at the apex and the upper lamella is divided, making three lamellae. The claspers are hinged and the aedeagus is short as if stunted.
>
> The brown legs are more or less stained with black in parts, and there is no spur on the anterior tibiae. The hind metatarsus is strongly swollen. The bristles are poorly developed on the femora and show no marked characters. The wings have a simple venation, with the cubital and anal veins coalescing close to the wing margin, and the radio-median cross-vein is situated well before the middle of the median cell. Length 13 mm.

Distribution: Australian: *Nerterhaptomenus morus* (1929), Brisbane, Queensland.

The long, drawn-out ovipositor of the female is of a generalized type. All aspects considered, the relationship of this fly appears to be with the Dioctrini.

Genus *Pritchardia* Stuardo

FIGURES 22, 45, 422, 809, 818, 1020, 1029, 1659, 1884, 1909, 2002

Pritchardia Stuardo, Catálogo de los dipteros de Chile, p. 80, 1946. Type of genus: *Dasypogon hirtipes* Macquart, 1838, by original designation.

Strobilopygius Hull, Bull. Brooklyn Ent. Soc., vol. 51, p. 70, 1956. Type of genus: *Dasypogon hirtipes* Macquart, 1938, by original designation.

Flies of medium size or smaller, of dark coloration and sparsely pilose. The lower two-thirds of the face is strongly protuberant, with many long bristles. The legs are stout and bristly. The abdomen is tapered, but rather wide at the base and distinctly flattened; the fourth posterior cell is closed. These flies suggest *Hypenetes* Loew in appearance, differing sharply in the not attenuate, third antennal segment and the absence of spines on the female terminalia. Length 12 mm.

Head, lateral aspect: The face is strongly convex and protuberant, but the protuberance is restricted to the lower two-thirds, leaving the upper third barely visible in profile. The occipital bristles are weak in the middle, becoming stronger near the vertex, where they are strongly proclinate. Proboscis short, stout, held almost horizontally, slightly compressed laterally. Palpus clearly of two segments; first segment hemicylindrical and excavated; second segment porate, with numerous, fine, long hairs. The antenna is short, the first segment nearly twice as long as the second and both with abundant, rather long pile dorsally, laterally and ventrally. Third segment strongly swollen dorsoventrally, laterally compressed, and narrowed only at base and apex.

Head, anterior aspect: The face has numerous, extremely long, stout bristles directed for the most part forward but slightly downward, the upper bristles more or less curved, the greater portion of these bristles spread out as a triangular patch on the anteromedial part of the protuberance. Long bristles are also present on the lateral margin of the subepistomal area. The front is strongly divergent in the middle, but slightly narrowed at the vertex; it bears numerous, fine, long, erect hairs, which are especially long and stout at the vertex. The ocellar protuberance is low, with oblique sides, ocelli set at vertex. Ocellar bristles consist of 3 or 4 pairs of moderately long, stiff, slender bristles.

Thorax: The thorax is pollinose and generally dull; the pile is scanty, fine and erect, becoming much longer in front of the scutellum, where there is an irregular double row of hairs on each side. Acrostical and dorsocentral bristles present anteriorly. Humerus with numerous, fine, long hairs. The mesonotum shows a tendency to a moderate complement of long bristles of moderate thickness and which become fine apically. Material studied shows the following complement of bristles: No humeral or posthumeral bristles, 2 notopleural, 2 supraalar, 3 postalar, and 4 pairs of scutellar marginal bristles. The scutellar surface is quite flat, with 12 fine, erect hairs confined to the sides; surface densely pollinose; margin without bristles or hairs. Pleuron pollinose, with pile absent on the hypopleuron; lower propleuron and upper propleuron with numerous, long, fine hairs and no bristles; anterior pronotal collar with numerous, fine hairs and a few weak bristles. Poststernopleuron with 8 to 10 long hairs. Mesopleural junction with a tuft of short pile.

Legs: All femora stout, especially the anterior and middle pair. Hind femur slightly attenuate basally; tibia not greatly thickened. The hind femur bears stout, moderately long bristles: 1 dorsal near apex, 2 dorsolaterals in a row shortly removed from apex, and 3 laterals situated over the middle area. The hind tibia is densely appressed pilose with a few long, scattered bristly hairs ventrally and laterally and medially near the base, and bears stout, curved moderately long bristles as follows: 3 dorsomedial, 3 dorsolateral; 3 ventrolateral; the apex bears 2 medial, 1 dorsal, 3 laterals, and 2 long ventrals enclosing two short bristles. Hind metatarsus little more than half as long as the remaining segments. Midfemur short appressed pilose above, densely, long, bristly pilose below, with a stout, long bristle anteriorly just beyond the middle and another posteriorly near the apex; its tibia has moderately long, basally stiff, fine, attenuate bristly pile situated posteriorly, anterodorsally, and anteriorly, as well as ventrally. The middle tibia is densely appressed pilose with a few long, scatstout bristles as follows: 2 anterior bristles from the middle and beyond, 2 anterodorsal, 2 posterodorsal, 1 posteroventral, and at the apex 1 anterior, 2 dorsal, 1 posterior, and 4 ventral bristles. Anterior femur with long, stiff, bristly pile dorsally, but confined to the posterior half and extending undiminished on the posterior and ventral surfaces. Its tibia is similarly covered with long bristly pile on the same area, and has 3 posterodorsal bristles. Apex of anterior tibia without spine, pulvillus well developed.

Wings: Marginal cell widely open. Anterior branch of the third vein ends before the wing tip, fourth posterior cell closed and stalked. The second basal cell is closed with 2 veins and a short stalk beyond. Anal cell closed and stalked. Alula moderately wide; ambient vein complete.

Abdomen: The abdomen as long as the wings, gently tapered, distinctly flattened, the first tergite is laterally swollen and convexly ridged and this segment is as wide as the mesonotum. Female with more strongly attenuate and pointed abdomen. Six tergites are well developed in the male, the seventh is visible dorsally but quite short, the eighth can also be seen from above but is a mere linear ridge. Seven tergites present in the female; the eighth forms part of the ovipositor. There are 2 or 3 weak bristles, or coarse bristly hairs, present in the posterior corners of tergites 2 to 6. Male terminalia conspicuous, epandrium cleft into superior forceps, which are well developed; terminalia not rotate. Female terminalia short, thrust obliquely upward, with the terminal portion held at right angles and without spines.

Distribution: Neotropical: *Pritchardia hirtipes* Macquart (1838); *puella* Bromley (1932). In the Chilean area.

Genus *Aplestobroma* Hull

FIGURES 13, 405, 808, 817, 1651, 1905, 1906, 2036, 2243, 2246

Aplestobroma Hull, Psyche, vol. 64, no. 3, p. 93, 1957. Type of genus: *Aplestobroma avida* Hull, 1957, original designation.

Flies of medium size, characterized by the subcircular head with very narrow face and the rather cylindrical, narrow abdomen, and readily recognized in the males by the long, dorsally placed hypandrium, which curls down apically and posteriorly over the terminalia. Male terminalia fully rotate. In the females the terminalia are deeply recessed within the eighth tergite, which forms an overlapping hood. Spines of acanthophorites are absent. The anal cell is open; fourth posterior cell closed. Length 16 mm.

Head, lateral aspect: Face in profile scarcely visible on the upper three-fourths and only moderately protuberant below and not produced beyond the general plane of the face. Eye unusually long and strongly convex anteriorly, slightly wider above, nearly plane over the middle portion of the occiput and not recessed below. Occipital pile present only below; it is moderately long and fine and abundant on the lower half of the head, replaced by numerous bristles above. The anterior row of bristles consists of 9 pairs and the bristles are exceptionally stout and very strongly proclinate. Below and just above the middle of the head is a band of weaker bristles in 3 or 4 rows of 7 or 8 bristles each; these extend entirely around the upper portion of the occiput. Proboscis short but unusually stout, gradually swollen towards the base and bearing an exceptionally high medial ridge. The apex is dorsoventrally depressed and therefore in profile appears rather narrow and attenuate apically. It bears a number of fine but stiff hairs along each ventrolateral margin but only 3 or 4 hairs dorsally at the apex. Basal half of the ventral margin with some long, fine hairs.

Palpus clearly of two segments; both segments small, short and robust, the first segment cylindrical and not excavated and not fused; the second segment bears a small apical pore. The first palpal segment bears long, fine pile ventrally; the second has stiff, bristly hairs ventrally, and laterally near the base, and similar hairs dorsally and subapically.

The antenna is attached at the upper fifth of the head; it is elongate, slender, slightly longer than the head. The first two segments are elongate and of nearly equal length. The third segment is slender, not quite as wide as the end of the second segment, with parallel sides to the middle and tapering gently to its ventrally oblique apex; it is slightly longer than the combined length of the first two and bears a stout, short, robust microsegment; its large, apical opening is dorsal, oblique and has a short spine. Pile of first segment restricted to the ventral and ventrolateral areas and consists of 10 to 12 stiff, oblique setae; apex with 2 or 3 quite long setae. Second segment with 5 setae above, the same number of longer, stouter setae below.

Head, anterior aspect: Face below antenna about one-ninth the head width. The face is slightly divergent on the upper half; at the bottom of the eyes the face is strongly divergent, its width one-third the head width. Subepistoma short. The face is pubescent and bears on each side submedially a single vertical row of 10 long, slender curled bristly hairs which begin at the base of the antenna. Lower middle of the face above the epistoma with a triangular area containing numerous, long, stout bristles directed obliquely downward; this group contains at least 25 elements. The front is quite narrow, slightly wider than the face below antenna; it has parallel sides continued to the vertex. Sides of front with four slender bristles; the vertex is scarcely excavated, the ocellarium moderate in height, rising above the eye margin and bearing 5 or 6 pairs of slender, moderately long, anteriorly directed bristles. Eye facets slightly enlarged.

Thorax: Mesonotum of moderate height, with dense velvetlike pubescence on each outer third, the medial portion of the mesonotum nonpollinose. Pleuron densely micropubescent, the mesopleuron chiefly bare. Pile of mesonotum scanty and fine, consisting of long, erect, subappressed setae. It bears a single row of acrostical bristles, an irregular double row of dorsolateral bristles which vary in length from short to very long and which, opposite the wing, become quite long, comprising 6 to 8 long bristles extending to the scutellum. Humerus with weak bristles; the margin from the humerus to the suture with numerous stout bristles and bristly hairs. The notopleuron bears 2 or 3 stout bristles in front. Supraalar has from 2 to 4 stout and 4 weak bristles. Postalar has 1 or 2 long and stout and several weak bristles. Scutellar margin with a single pair of stout bristles or 2 to 8 pairs of slender, weak bristles or bristly hairs. Propleuron with abundant, long, fine pile, the collar with 3 or 4 pairs of weak bristles and stiff pile. Mesopleuron apilose or with 8 or 9 long slender bristly hairs. Metapleuron with a vertical row of 7 or 8 long slender bristles and additional pile before and behind. Metanotal callosity micropubescent only. Metasternal slopes with numerous long hairs, the metasternum densely long pilose, the postmetacoxal area membranous. The metasternum is narrow but rolled out and forward into a low transverse convex ridge.

Legs: All the femora and tibiae slightly elongate and comparatively slender, the hind pair especially so. The hind femur is slightly and gradually thickened towards the apex; its tibia thickened near the apex. The hind femur bears scattered, appressed setae dorsally, except near the base, and these continue down the upper half of the lateral surface; stout, sharp bristles are present as follows: 2 dorsomedial at the apex, 1 dorsolaterally at the apex, a single stout, medial bristle at the apical seventh, laterally a row of 4 stout bristles, row may contain as many as 9 bristles; ventrally on the basal half are 3 long, slender, attenuate bristles with a scanty row of fine, erect pile. The hind tibia bears 3 to 5 stout, long, dorsal bristles, 2 or 3 dorsolateral and 3 or 4 ventrolateral; apex with 12 bristles. The middle femur bears 1 to 3 dorsolateral apical bristles, 3 to 5 stout, anterior and only a fringe of long, fine pile ventrally. Its tibia has 5 weak dorsal, but of its 5 anterodorsal bristles, at least 3 are long and strong; it bears 4 to 6 long, strong posterior, and 2 to 3 long, strong, oblique, ventral bristles. Anterior femur with 2 weak dorsoapical bristles and 1 to 3 stout, anterior apical bristles; its tibia has a double dorsal row of short, stout bristles each containing 3 to 6 bristles and posterior row with 4 or 5 long, stout bristles. Apex of anterior tibia without trace of spine. Tarsus ends in slender, long, spatulate pulvillus; claws long and sharp.

Wings: The marginal cell widely open; the anterior branch of the third vein ends at or barely above the wing apex; the posterior branch ends well behind the apex; base of second submarginal cell arched forward. First posterior cell fully open; both end veins of the discal cell of approximately equal length; the fourth posterior cell closed with a long stalk. Anal cell widely open; ambient vein complete.

Abdomen: The abdomen is comparatively slender and subcylindrical, slightly shorter than the wings. Sides of the first tergite swollen laterally; 7 well developed tergites present in the male, the eighth appearing as a narrow, short, flap in the middle and right side only, or this segment completely concealed. Eight tergites present in the female, the eighth nearly as long as the seventh. Pile of abdomen short, appressed and setate in the middle of the tergites and becoming long and fine narrowly along the lateral margins. Sides of first tergite with 5 or 6 long, slender bristles, absent on the remainder of the abdomen. Sternites with long, slender, erect, bristly hairs. Male terminalia in the type of genus is fully rotate, the hypandrium forms a curled process, short on some species, in others greatly elongate and curled downward apically over the remainder of the terminalia. The epandrium is fully cleft, and developed into superior forceps, which are robust, convex and conspicuous and each with a long, terminal process. Gonopod smaller but prominent. Aedeagus tubular at apex. All three divisions of the terminalia tend to be divergent dorsoventrally, leaving clefts between them. Female terminalia deeply recessed within the overhanging, hoodlike or shieldlike eighth tergite; the only structure, which can be discerned within this cavity is the spatulate, pilose, apical proctiger. After examining many females, I can find no evidence of acanthophorites or spines.

Distribution: Australian: *Aplestobroma avida* Hull (1957).

Genus *Broticosia* Hull

Figures 12, 408, 841, 850, 1653, 2244, 2247

Broticosia Hull, Psyche, vol. 64, no. 3, p. 91, 1957. Type of genus: *Broticosia rapax* Hull, 1957, by original designation.

Rather smaller than medium size and slender flies with long, somewhat compressed abdomen. They are immediately recognized by the circular head, the extremely narrow face, which carries a dense, narrow, vertical band of long, matted, bristly pile extending from the antenna to the gibbosity and then extending down over the gibbosity to form an especially dense, matted, triangular tuft. Related to *Aplestobroma* Hull through the similarly produced hypandrium. Length 13 to 15 mm.

Head, lateral aspect: The upper three-fourths of the face is nearly plane with the eye level; on its lower portion the face presents a low, rounded retreating elevation not extending forward beyond the upper plane of the face. The eye is long, strongly convex anteriorly, nearly plane through the middle portion behind, and not recessed. The occiput is moderately thick and continues undiminished to the upper portion of the head where it slopes gradually to the eye margin. Pile of occiput extremely long, fine, and matted dorsally, and extending far above the vertex and mesonotum; the individual hairs are three-fourths as long as the antenna. Pile along the middle of the occiput also long, fine and bristly and directed outward, but less abundant. Ventral pile shorter but abundant and matted, true bristles are absent. The proboscis is small, short, gradually swollen towards the stout base; it is dorsoventrally depressed towards the apex and therefore in profile appears rather narrow apically and especially tapered and oblique on the lower portion. This lower portion bears laterally some long, stiff setae, but only a few minute hairs dorsally at the apex; the base ventrally has a number of long, slender bristles directed obliquely forward, together with weaker hairs. The proboscis is directed obliquely downward. The palpus is distinctly composed of two segments, the second segment generally held at nearly a right angle. The first segment is short, distinctly hemicylindrical and excavated, pilose below. The second segment is club-shaped, relatively short, narrowed basally and carries a number of long, stiff bristles ventrally and apically. It appears to lack a pore.

Antenna attached at the upper fifth of the head, unusually slender and distinctly longer than the head. The first two segments combined are as long as the third segment, its microsegment excluded. The second segment is two-thirds as long as the first segment and apically widened. Third segment quite slender, a little swollen at the immediate base and slightly tapered just before the apex which is ventrally and obliquely truncate. This segment carries a long microsegment held at a slight angle, the microsegment is approximately a little less than one-third as long as the third segment, and at its apex it has a ventral, spoonlike or hoodlike extension which contains a long, dorsal, spinous bristle. Pile of the first antennal segment confined almost entirely to the ventral surface with no dorsal pile; it carries a dense, exceptionally long fringe of stiff, bristly hairs fully as long as the third antennal segment. This fringe is more or less matted and extends from base to apex. Apex of second segment with fine, long setae above and 6 long, stout bristles below, matted and similar to those of the first segment.

Head, anterior aspect: The head is nearly circular. The face width below antenna is one-tenth the head width, widening below to nearly one-third. The subepistoma is short, oblique and nearly plane. Face with a narrow, vertical, dense, matted band of exceptionally long, slender, bristly pile, extending from the antenna to the upper slope of the low gibbosity. This pile is nearly as long as the antenna and might be described as weak bristles. On the gibbosity there is medial, similar, bristly hair which extends out over the whole surface, except its lateral margin, but comparatively long, because of the length of the head, and is only a little wider than the upper face. The sides of the front have dense, long, matted pile similar to that on the face, but only a little longer than the length of the first two antennal segments. The vertex is scarcely excavated, the ocellarium large, low, with swollen ocelli and bearing a number of fine, long, bristly hairs. Anterior eye facets slightly enlarged.

Thorax: The thorax is densely, coarsely micropubescent. The mesonotum is only abrupt anteriorly, but has a rather high, slightly narrowed and arched appearance. Cover of mesonotum consists of numerous, very long, fine bristles down the middle of the mesonotum and some shorter bristles submedially. The acrostical bristles are numerous, long and slender and subappressed, the dorsocentral bristles are short on the anterior third, becoming extremely long and numerous opposite the wing and near the postalar callosity, changing from a narrow, double row to spread out over the entire prescutellar area. Humerus short, fine, appressed pilose, with a few scattered, erect hairs. Lateral margin of the mesonotum with many moderately long, fine, erect, bristly hairs. The notopleuron with 2 long, slender bristles, the supraalar area with 1, the postcallosity with 2 or 3 bristles, the scutellum with a wide band containing many rows of extremely long, slender bristles more or less matted together and with some long, coarse pile along the ventral margins. The scutellum is small, with a flat disc, and lying close to it are a number of stiff, bristly hairs projected backward from the immediate, overhanging, prescutellar margin; its disc seems to be without pile, but is pubescent. Propleuron with a long, fine tuft of pile. Mesopleuron without pile, except on the anterior prolongation. Upper sternopleuron and the pteropleuron with 8 to 10 fine, long, erect hairs. Hypopleuron without pile, but with a differentiated patch or spot of micropubescence. Metapleuron with a wide band of long, stiff, very slender bristles or bristly hairs. Metanotal slopes micropubescent only; metasternal slopes and the metasternum both with numerous, fine, long hairs; postmetacoxal area very short and limited but distinctly membranous. Basalare with long, stiff setae.

Legs: All the femora and tibiae slender. The hind femur and tibia especially slender and elongate. This femur bears 8 bristles, including one at the apex and 2 weak, dorsomedial bristles at apex. Ventrally is a moderately abundant fringe of long, fine, stiff hairs. The hind tibia carries 2 moderately long, curved, oblique, dorsolateral and 6 or 7 longer dorsomedial, and 5 moderately long, ventrolateral bristles. The appressed, ventral brush of setae extends to the middle. Hind basitarsus considerably swollen and robust, a little longer than the next 3 segments. Middle femur with 2 bristles posteriorly at the apex, a fringe of stiff pile below; its tibia bears 5 long, slender, attenuate, posterodorsal bristles, but the 6 anterodorsal and 2 ventral bristles are exceptionally long, a little curved, oblique, and fully three-fourths as long as the tarsi. Anterior femur with copious fringe of stiff pile ventrally. The tibia with 4 or 5 bristles dorsally and 2 long, posterior bristles. Apex of tibia without spur. All tarsi bear well developed pulvilli; empodium half the length of the sharp claws.

Wings: The wings are hyaline, the marginal cell widely open. Second submarginal cell strongly arched at its base; the anterior branch of the third vein ends at wing apex; the posterior branch well behind apex. The first posterior cell is fully open; both end veins of discal cell long. Fourth posterior cell narrowed to two-thirds of its maximum width; anal cell widely open; second basal cell ends in 3 veins. Alula narrow and linear; ambient vein complete.

Abdomen: The slender abdomen is somewhat compressed laterally and as long as the wings. The first tergite is a little swollen laterally. Seven tergites present in the male with the eighth present as a short, linear flap. Pile of abdomen more or less appressed dorsally; on the posterior half of the abdomen the pile is setate but long, fine and curled on the first three tergites and the sides of the fourth. Sternites with stiff, long, bristly hairs in contrast to the tergal pile. All tergites without bristles. Male terminalia moderately large and conspicuous, fully rotate; the hypandrium extends from the dorsal margin as an extended, narrow process curled down over the apex of the terminalia.

Distribution: Australian: *Broticosia rapax* Hull (1957).

Pegolabrus, new genus

Type of genus: *Pegolabrus paramonovi*, new species.

Slender flies of medium size, with faint brassy reflections from the abdominal tergites. Related to *Broticosia* Hull but differing in the presence of long, bushy pile on the disc of the scutellum. Fourth posterior cell closed and stalked. Length 14 mm., including antenna.

Distribution: Australian: *Pegolabrus paramonovi*, new species.

Pegolabrus paramonovi, new species

Male. Head: The head is circular from the anterior aspect with very narrow upper face, which widens below. Front and vertex also narrow but a little wider than the upper face. The head is black throughout in ground color. Pile of upper occiput rather dense, exceptionally long, fine and black. There are numerous, similar, long, fine, black hairs arising from the large ocellar triangle, which is nearly equilateral in shape. Sides of front with a tuft of long, fine, black hairs. Antenna slender, elongate and black. Surface of face densely covered with pale, yellowish white, appressed micropubescence, which is rather whitish on the sides of the low, facial gibbosity. The medial half of the face has a vertical band of dense, remarkably long, fine, black hairs in matted tufts. These tufts of hairs diverge along the sides of the facial gibbosity below and are equally long but somewhat less dense. These ventral hairs enclose a tonguelike tuft of matted, long, pale yellow hairs. In the midline at the bottom of the face above the epistoma is another tuft of dense, matted, long, black hairs. Proboscis short, shining black and bluntly rounded. It is directed downward but if extended forward it would reach but little beyond the epistoma, if at all. Palpus of two segments, the first of which is excavated, the second short, robust, with numerous, fine, black hairs. Both segments are black. The central portion of the upper occiput on its lower part has considerable long, fine, yellowish white hairs. Laterally the lower third of the occiput has some quite short, yellowish white hairs.

Thorax: The mesonotum is black, obscurely shining across the middle, a little more polished opposite the wings and with a large, more or less triangular patch of minute, greyish white micropubescence which is almost pollenlike on the anterior half of that part of the mesonotum in front of the suture. This fine micropubescence extends as a rather wide marginal band along the sides of the mesonotum and medial to the postalar callosity. Viewed from above it is quite white, almost bluish white. Pile of mesonotum abundant, exceptionally fine and unusually long and erect, this pile longer and somewhat more conspicuous on the posterior third of the mesonotum, and with a rather conspicuous patch of similar, equally long pile on each side of the disc of the scutellum which is also black in color. Ventral margin of scutellum, upper mesopleuron and propleuron with abundant, long, fine, white hairs. Metapleuron with a vertical band of some 20 similar bristly hairs.

Legs: The legs are slender; anterior femur with the basal half and middle femur with the basal fifth shining blackish, the color diffusely delimited. Apex of the first four tibiae narrowly black and all the basal segments quite black. Remainder of these tibiae and their femora light orange brown. Hind legs missing. Pile of the middle femur quite fine and erect, chiefly pale and long ventrally, but with a few quite long, black hairs intermixed and with some short, black hairs dorsally on the outer third, besides 1 or 2 slender, black, dorsal and apical bristles. Middle tibia with 7 oblique, long, quite slender, black bristles and 4 still longer, stouter, pale yellow, anterodorsal bristles: 5 posterior yellow hairs that are long and bristly; 2 long, stout, posteroventral, yellow bristles; and 1 similar, basal, anteroventral bristle. Anterior femora with quite abundant, long, exceptionally fine, erect, blackish hairs from the dorsal, posterior, and ventral surfaces and also with abundant but rather short, fine, yellow hairs medially. Anterior tibia with the bristles short, except for 2 long, rather thick, yellow, posteroventral bristles and beyond them a single long, black, bristly hair and posterodorsally 7 short, rather stout, black bristles and 8 similar, anterodorsal, short, black bristles. Ventral surface with numerous, very fine, erect, black hairs, which are both short and long. Bristles at the apices of the tibiae chiefly yellow. Claws slender, pulvilli long and spatulate. Empodium quite stout at the base and pale in color.

Wings: The wings are hyaline; the veins dark sepia-brown, except basal to the humeral crossvein they are light orange-brown.

Abdomen: The abdomen is more or less compressed, shining black with a faint greenish to brassy luster similar to *Broticosia rapax* Hull but less pronounced. The sides of the tergites are rather densely covered with a remarkably fine, minute, pollenlike, whitish bloom or micropubescence. Pile erect, fine and yellow; especially dense and long on the sides of the first 3 tergites, shorter in character dorsomedially and greatly reduced beyond the third tergite. Sternites with long, fine, erect pile which is mostly yellow but with some black hairs intermixed. Terminalia shining black, the proctiger basally and laterally reddish brown.

Type: Male, Dubbo, New South Wales, August 29, 1925. In the collection of Commonwealth Scientific and Industrial Research Organization, Canberra, A.C.T.

Genus *Leptarthrus* Stephens

FIGURES 4, 411, 807, 816, 1895, 1898

Leptarthrus Stephens, Syst. Cat. British Insects, pt. 2, p. 258, 1829. Catalog name accompanied by unnamed figure and definitive hind tarsus of a male fly. Type of genus: *Dioctria brevirostris* Meigen, 1804. Taken from Verrall (1909).

Isopogon Loew, Linnaea Entomologica, vol. 2, p. 492, 1847. Type of genus: *Dioctria brevirostris* Meigen, 1804, by monotypy.

Small flies, characterized by a rather robust abdomen, tapered at the apex only. They have short, appressed pile with dense, long pile of the head and mesonotum. The mesonotum is high, and the face wide with parallel sides. These flies are distinguished in the male by the curious swordlike, thin, and laterally compressed hind basitarsus, and in the female by the slender, elongate, simple ovipositor formed from the narrow, tubelike sixth to eighth segments. Length 10 mm.

Head, lateral aspect: Face low and gently rounded, slightly produced beneath the antenna and protruding but little more on the lower face. Eyes strongly convex anteriorly, gently behind, without ventral recession. Occiput prominent, moderately developed, thinning at vertex and again at the bottom of the eye. Occiput without bristles but with uniformly dense, long, crinkled, delicate pile; the long pile begins some distance from the eye margin. Proboscis small, short, oblique, obtuse, strongly swollen towards the base and from dorsal view acutely triangular. It has a low medial ridge and short stiff pile at the apex and in the middle laterally; at the base below are numerous long, fine hairs. Palpus distinctly of 2 segments, the first segment longer, robust, with numerous fine long hairs laterally and stiff pile below. The short, apical segment is porate and bears just beyond its middle a crease which may indicate a subdivision and bears a few long slender hairs. Antenna attached just above the middle of the head. The first 2 segments are short, beadlike, and equal in length. The third segment is rather long, slender, tapered from the middle to the apex and bears 2 microsegments, the first quite short, the second 3 or 4 times as long, with at its apex a distinct spine. The microsegments and third segment thickly pilose, the former held at a distinct oblique angle. First 2 antennal segments with several long stiff hairs dorsally, the first segment ventrally and laterally with 8 or more long, slender, bristly hairs, the second segment with 2 or 3 hairs.

Head, anterior aspect: Face wide, a little more than one-fourth of head width and slightly divergent below. Face pubescent or sometimes bare in the middle and bearing numerous, long, curved, stiff pile or bristly hairs. These bristly elements extend nearly to the antenna and are largely directed forward; the lower elements are more numerous and curled downward. Subepistoma small, concave and not quite horizontal. The front is short, very slightly divergent, the vertex of the same width. The front bears a number of slender bristly hairs laterally, the vertex is only moderately excavated and has slanting sides. The ocellarium unusually large and wide with all ocelli swollen. It bears 10 to 15 pairs of long, erect stiff, slightly divergent hairs. Central eye facets strongly enlarged and zoned.

Thorax: Mesonotum high and strongly arched. It is pubescent chiefly on the notopleural area and the transverse suture is strongly arched and curves backward. Anterior part of postcallosity, supraalar region, and the pleuron except for a bare mesopleural spot, pubescent. Pile of mesonotum rather dense and unusually long, but fine and delicate, crinkled and subappressed and directed backwards. Humerus pilose. Weak lateral bristles are present as 3 or 4 slender notopleural bristles and no others. Scutellar margin with long, quite delicate hairs. The scutellum thick, convex, bare and shining except for pubescence on the lower marginal rim. Propleuron with dense, long, delicate pile, including the collar. Upper mesopleuron with numerous fine hairs, sternopleuron with 2 hairs, pteropleuron and hypopleuron micropubescent only, metapleuron with a band of long, fine, delicate pile above which are a few, stiff, slightly bristly hairs. Metanotal slopes micropubescent only, metasternal slopes and the metasternum with abundant quite long, fine pile; postmetacoxal area membranous.

Legs: The femora are only slightly stout, the hind pair barely dilated on the apical half. The hind tibia is stout but straight. The hind femur bears appressed setae above, 3 bristly hairs medially at apex, 3 weak bristles dorsolaterally at apex, and a rather abundant, ventral fringe of long stiff hairs. The hind tibia bears 8 or 9 moderately long, sharp, oblique, dorsal bristles, 2 dorsolateral at the base, 2 lateral in the middle, 2 or 3 long bristly hairs medially and an oblique ventral fringe of stiff hairs. The apex has 1 dorsal, 3 lateral, 3 medial, and 4 ventral bristles. Hind basitarsus in the male extended into a very slender, distally attenuate, laterally compressed, thin process which is longer than the femur itself. The remaining tarsal segments minute, greatly shortened, except that the last one is a little swollen. The female basitarsus, while elongate and nearly as long as the remaining segments, is robust and cylindrical and in no way abnormal. Middle femur with appressed pile above, 2 small bristles anteriorly near apex, and a copious fringe of long, stiff bristly pile below. The middle tibia bears the following bristles: 10 short dorsal above, which are oblique, sharp, and basally stout; 2 anterior on the basal fourth; 8 or more long, slender posterior and 6 or 7 equally long posteroventral bristles. It also has 6 slender ventral and the same number of slender, longer anteroventral bristles; apex with stout spines only below. The anterior femur is similar to the middle femur; its tibia bears 8 short stout posterodorsal, 8 to 10 shorter anterodorsal, 4 or 5 slender posterior, but with 2 additional stouter ones on the outer third. It also has a few long slender posteroventral, some similar ventral and 2 stout, long bristles near the apex. Apex of anterior tibia with a short, sharp, slender, curved spine. Pulvillus as long as the claws; empodium fine, about half as long as the pulvillus.

Wings: The marginal cell widely open, all posterior cells widely open, anal closed and stalked, second basal cell closed by three veins. Alula moderately developed; ambient vein complete.

Abdomen: The abdomen is rather robust, slightly wider at the end of the second and third tergites, where it is wide as the mesonotum; it is slightly tapered on the fourth tergite; considerably tapered on the fifth tergite. Seven tergites present in the male, the seventh at least half as long as the sixth, which is only slightly reduced. Female with only five well developed tergites, the sixth, seventh and eighth are quite small, short, dorsoventrally flattened and together form the ovipositor. Pile of abdomen dense, subappressed and setate with considerable, long, radiating, fine pile on the sides of tergite two and some long pile laterally on tergite one. Bristles absent. Sides of abdomen rolled; the sternites with abundant, long, fine pile; the tergites are, therefore, quite convex. Male terminalia small and short and not rotate. The epandrium is downturned, arched and hoodlike. The gonopod is well developed but the hypandrium is greatly reduced. Dorsal proctiger with deep, linear, medial fissure.

Distribution: Palaearctic: *Leptarthrus brevirostris* Meigen (1804) [=*apicalis* Rossi (1840), *armillatus* Fallen (1814), *longitarsis* Fallen (1814)]; *vitripennis* Meigen (1820) [=*elatus* Meigen (1820), *?hottentottus* Fabricius (1794), *hyalipennis* Meigen (1804) not Fabricius].

Ethiopian: *Leptarthrus parvulus Bigot* (1859).

Country unknown. *Leptarthrus volcatius* Walker (1849).

Ricardo (1912b), points out that *Dasypogon volcatius* Walker does not properly belong to *Leptarthrus*, but she did not assign it to a genus. She noted a general similarity to *Deromyia* Loew, by which she almost certainly meant *Diogmites* Loew and not the *Deromyia* Loew now restricted to Chile. It is included in this species list until further study.

Parmenter (1952b) has discussed the pupa of *Leptarthrus brevirostris* Meigen.

Genus *Molobratia* Hull

FIGURES 10, 537, 810, 819, 1632, 1643, 1921, 1974

Molobratia Hull, Proc. Ent. Soc. Washington, vol. 60, p. 251, 1958. Type of genus: *Asilus teutonus* Linné, 1767, by original designation.

Large or medium size flies, readily characterized by the drooping aspect of head and abdomen, the bare appearance, the long legs, open posterior cells and the very greatly elongate protuberance of the protibia, together with the absence of spines on the female terminalia. Distinguished from *Dasypogon* Meigen, with which it has been confused owing to a misunderstanding of generotypes, by the lack of the acanthophorite spines and the lengthened fore legs, weak or reduced ocellar and scutellar bristles in contrast to the strong, long, numerous bristles placed on these parts in *Dasypogon.* On *Molobratia teutonus*, also, there is a rather conspicuous tuft of small bristles on the third antennal segment, which ends with a sharp, conical microsegment; posterior cells of wing open, the fourth closed in *Dasypogon.* Length 20 to 25 mm.

face moderately prominent throughout, more so below,

Head, lateral aspect: Head of medium length, the face moderately prominent throughout, more so below, but never strongly extended or gibbous, and not quite plane in profile. Occiput nowhere prominent, its pile everywhere stiff and bristly in character. Bristles may be restricted to a single row from the middle to the vertex, or may constitute a band along the outer half of the occiput from the vertex to the base below. Proboscis stout, laterally compressed, rather pointed and swollen toward the base; the apex and ventral surface bear fine hairs and on the basal half, the sides and base also bear long, fine hairs. Palpus clearly of two segments, the first segment hemicylindrical, excavated, the second robust and attached dorsoapically to the first. Both segments bear numerous, long, bristly hairs. Antenna attached near the upper fourth of the head, moderately elongate, very little if any longer than the total head length; the third segment is longer than the first two combined, sometimes laterally compressed, and generally attenuate apically, with conspicuous, long, dorsal bristles. There is a well developed, pointed microsegment with apical spine.

Head, anterior aspect: The face width below the antenna varies from a little less than one-fifth to nearly one-third of the total head width and has either parallel sides, or is moderately divergent below. The face is pubescent, with short or long, stiff but scanty pile over the middle, reaching nearly to the antenna and with slender or moderately stout, long bristles on the lower third. Subepistomal area large, oblique, and concave. The front is rather short, very slightly wider than the upper face, pollinose or bare medially, and characteristically with numerous, long, stout bristles placed laterally. Vertex at the most shallowly excavated, the ocellarium low but prominent, with three pairs of bristles, some of which may be slender, or all may be stout and at least one pair long; there are sometimes short, postocellar bristles as well. Anterior eye facets slightly enlarged.

Thorax: Mesonotum low, bare, with scanty fine setae and dense, often bright colored pubescence and sometimes with a well developed dorsocentral band of bristly pile, and more scattered acrostical pile. The following complement of bristles present: No humerals, 5 notopleural, 5 to 7 supraalar, and 3 to 5 postalar. Scutellum either without bristles or pile, or with several pairs of long slender bristles, its disc flattened and pubescent. The pronotal collar bears either moderately stout bristles or bristly pile; the postpronotum is prominent, much higher than and separated from the anterior portion by a deep crease, and bears lateral bristles or pile. The lateral prothorax has a conspicuous tuft of numerous long bristles or pile. Prosternum dissociated. Of the remaining pleura only the metapleuron bears pile or bristles; it contains a vertical band of scattered bristly hairs. Metanotal callosity micropubescent only. Postmetacoxal area membranous.

Legs: The legs including both femora and tibiae, are unusually elongate. The anterior basitarsus may be considerably lengthened. The femora are slender, with scattered, fine appressed setae. The hind femur bears quite short, moderately stout bristles, with the following complement: dorsomedial 5 to 7, dorsolateral 5, and on either side below 6 or 7, with a dorsal pair at apex. The hind tibia has somewhat longer bristles, 6 on each of the dorsomedial, dorsolateral, and ventrolateral rows. Tibial apex with 12 stout bristles, of which 1 is dorsal, 5 medial, and the remainder ventral. Anterior femur with 2 or 3 short bristles at the base anteriorly, 5 or 6 posterodorsally, 1 on either side at the apex dorsally, and a few minute bristles posteroventrally. Middle femur with a similar complement and the anterodorsal margin with 6 or 7. The anterior and middle tibiae have 5 or 6 slightly longer bristles in each row, and the ventral row of each contains 3 still longer bristles. The protibia has an exceptionally long protuberance extending far beyond the apex of the tibia and bearing medially a fringe of stout bristles or spinous setae; apex of protuberance with a stout, long or short spine, and this basitarsus with a ventral swelling and small denticles. Claws sharp; pulvillus well developed; empodium strongly swollen at the base.

Wings: Marginal cell, all the posterior cells, and the anal cell widely open.

Abdomen: The abdomen is more or less cylindroid, or moderately flattened, the pile reduced to fine, appressed setae throughout and including the lateral margins. Only the first tergite bears bristles; on each side are 3 or 4 pairs of bristles, which are stout, short and sharp, or long and weak. Males with 7 tergites only, the seventh about half as long as the sixth. Females with 8 tergites and the eighth tergite from one-half to one-fifth as long as the seventh. Male terminalia large, fully rotate, the epandrium elongate, conical, large, conspicuous and quite uncleft. The gonopod is moderate in size, sometimes with terminal protuberances. Aedeagus simple and fully exposed. Hypandrium small. Female terminalia quite inconspicuous, except that the proctiger is moderately large and protuberant. The ninth tergite is short, depressed in the middle, uncleft or very tightly apposed and without spines. The author has dissected females of *Molobratia teutonus* Linné without finding any evidence of either divided plates or spines.

Distribution. Palaearctic: *Molobratia japonicus* Bigot (1878); *teutonus* Linné (1767) [=*marmoratus* Fourcroy (1785), *teuton* Macquart (1834), *?tenthredoides* Scopoli (1763)].

Engel, 1930, assigns the following additional Palaearctic species to *Dasypogon*, of authors, which now becomes *Molobratia: Molobratia arcuatus* Fabricius

(1794), *brevipennis* Meigen (1838), *caudatus* Bigot (1881), *egregius* Loew (1869), *fabricii* Wiedemann in Meigen (1820), *longus* Macquart (1838), *nigriventris* Dufour (1833), *pekinensis* Bigot (1878), *ruficauda* Fabricius (1805), *tenuis* Macquart (1838). These Engel (1930) had apparently not seen as he does not place them in his key with the well known *Molobratia teutonus* Linné (1767) and *japonicus* Bigot (1878). I prefer to leave them for the present in the aggregate of unclarified species under *Dasypogon*.

I am indebted to H. Oldroyd, well known British dipterist, for calling to my attention the confusion of types for the genera *Dasypogon* Meigen and *Selidopogon* Bezzi. The type of *Dasypogon*, Oldroyd points out, is *Asilus diadema* Fabricius (1781) by designation of Latreille (1810), not *Asilus teutonus* Linné (1767), as commonly considered by authors. The name *Selidopogon* Bezzi (1902) represented a change of name from *Cheilopogon* Rondani (1856) because of preoccupation, which has as its type *Asilus punctatus* Fabricius, a synonym of *Asilus diadema* Fabricius. This makes *Selidopogon* equivalent to *Dasypogon* Meigen (1803). The asilid which has hitherto gone under the name *Dasypogon teutonus* Linné is left without a name; as this species shows certain significant differences from the true *Dasypogon* (*Selidopogon* of authors), I here propose a new name for it and characterize it in the foregoing description.

Tribe Phellini

The members of this small tribe, containing large and often "giant" species, are characterized by the possession of a spur vein, directed backward in the first submarginal cell from near the base of the anterior branch of the third vein. I regard this spur as a vestige of the third branch of the radius, which at an earlier time was united with the second branch as well as at the same time united with the fourth branch of the radius. The palpus is extraordinarily large and elongate. Further characteristics consist of the simple, generalized type of elongate ovipositor in females, comprising the sixth and the remaining segments to which *Psilozona* Ricardo has added a set of short, stubby spines reminiscent of those found in certain Asilinae. The end tergites of the male are developed into a forceps. The fourth posterior cell is closed and stalked.

It is interesting that this tribe is confined to Australia and Chile and, moreover, contains some remarkably large flies. All the species of *Phellus* Walker from Australia are large, but one robust species attains a length of 50 mm. and a wing span of 80 mm.; all are reported to be exceptionally alert, agile, and rapid fliers, not easily captured. They seem to be somewhat more abundant, on the basis of collected material, in the coastal region of West Australia.

KEY TO GENERA OF PHELLINI

1. Palpus half or less than half as long as the proboscis; apex of midtibia never with lobelike extension. The occiput is long and slender, triangular or cylindroid, comprising the sixth and remaining segments; its apex has slender bristles only. Large, densely pilose flies with bands of yellow and black pile . . . . OBELOPHORUS Schiner
   Palpus as long or nearly as long as the proboscis; apex of midtibia with a lobelike extension; ovipositor with short, stubby spines 2
2. Front fully one-third the head width; midtibial lobe well developed; ovipositorial spines poorly developed; size extremely large . . . . PHELLUS Walker
   Front one-fourth or less than one-fourth the width of the head; midtibial lobe poorly developed; ovipositorial spines well developed and the cylindroid ovipositor considerably wider and relatively shorter. Smaller flies of about 20 mm. length . . . . PSILOZONA Ricardo

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Genus *Phellus* Walker

FIGURES 5, 399, 806, 815, 1644, 1894

Phellus Walker, Insecta Saundersiana, vol. 1, pt. 2, p. 110, 1851.
Type of genus: *Phellus glaucus* Walker, 1851, by monotypy.

Exceedingly large flies with robust, tapering abdomen, long wings, which are very broad at the base and tapering gradually to a somewhat pointed apex. Characterized further by the unusually wide head and face, the broad, matted band of occipital and postvertical pile with the matted ventral tufts on the occiput and propleuron and further by the presence of a striking, protrusive, ventral lobe on the middle tibia. They frequently have much matted woollike pile on the posterior border of the mesonotum and sometimes on the first two abdominal segments, besides on the sternites. Related to the Chilean genus *Obelophorus* Schiner. Length 35 to 50 mm.

Head, lateral aspect: The face is moderately prominent, beginning to expand gradually beneath the antenna, but to no great extent. The eyes are strongly convex anteriorly, more gently convex posteriorly and not recessive below either anteriorly or ventrally. Occiput comparatively thick submarginally, sloping gradually to the eye margin. Occiput without bristles, the pile remarkably dense, tufted, coarse but thick, and slightly curly; it is equally abundant above and laterally and is longer ventrally and matched by and mixed with equally copious tufts of similar colored pile from the propleuron. The proboscis is moderately large, subcylindrical, gently attenuate apically, with a rounded point and considerable fine pile on the ventral apical third and some, long, fine pile on the basal half; a high dorsal ridge present. Palpus of two segments, the first quite short and robust and well hidden, cylindroid and unexcavated, chitinized on all sides but membranous only at the short basal medial point of attachment. The second segment is exceptionally long, cylindrical, with obtuse, rounded, not porate apex; it is covered on all sides and the apex with stout, long bristles; this segment is more than five times as long as the first. Antenna attached at the upper fourth of the head, long and rather slender but the first two segments short. The third segment is slightly and gradually narrowed to its basal third at which point it slightly widens to near the apex. The apex is narrowed, obliquely truncate, with a short microsegment followed by a longer, tapered, conical microsegment with a short apical spine. Pile of the first antennal segment composed of long, stiff, suberect, dorsal setae and a few ventral setae in the middle of the segment; second segment with a few stiff, dorsal setae.

Head, anterior aspect: Head width twice the height. The face below antenna is two-fifths the head width and slightly divergent below. Subepistoma large, concave and bare. Face with pubescence only on a small triangle opposite and below the antenna, otherwise bare and shining with dense pile which is short dorsally along the upper facial ridge. The pile becomes longer below; across the epistoma it is nearly as long as the proboscis. With the exception of the upper fringe of short pile, these hairs become thin and strikingly flattened apically. The face pile is directed obliquely downward and the proboscis directed obliquely forward. The front is as wide as the face, very slightly widened at the vertex; it is relatively short and bare with only a few fine hairs; vertex not excavated, the ocellarium almost not existent, the ocelli small, the intervening space with a tuft of short fine erect hair. Eye facets not enlarged.

Thorax: The thorax is shining and bare, the pleuron has a faint, scarcely discernible pollen. Mesonotum twice as long as high. Pile of mesonotum dense, fine and suberect. Dorsocentral and acrostical bristles undifferentiated, the pile above the wing, on the postalar, and on scutellum long, fine, dense and tufted. Humerus with abundant fine pile. Mesonotum with short, stout bristles as follows: 3 notopleural, 2 supraalar, and 4 to 6 postalar. Scutellum thick, arched and convex, the surface pollinose, with abundant, fine, erect, long pile. The scutellum with 4 pairs of slender bristles. Propleuron with dense matted tufts of fine pile. Anterior collar with about 16 pairs of stout long bristles. Mesopleuron with fine, long abundant pile; similar pile on the upper sternopleuron; scanty pile on the pteropleuron and posthypopleuron. Metapleuron unusually protuberant and convex, without bristles, almost its whole surface covered with dense, fine, tufted pile. Metanotal callosity bullose and pollinose only. Metasternal slopes with abundant fine pile; metasternum with a few fine hairs; the postmetacoxal area small and membranous.

Legs: The anterior and middle femora are stout without being especially thickened, the hind pair more slender. The hind femur bears dense, appressed setae above, a copious ventral fringe of dense, fine, long pile and bears 3 stout lateral bristles, 1 dorsomedial near the apex. The hind tibia has the following bristles: a double dorsal row (5 in each row) of relatively short, stout, appressed bristles, 2 stout, long, ventral bristles near the apex, and 3 or 4 lateral; the lateral and ventral bristles are almost hidden by the dense band of fine erect pile placed over all surfaces except the dorsal and which grows more conspicuous towards the middle; apex with 8 stout bristles. Middle femur with 2 stout dorsoapical posterior bristles and moderately dense pile dorsally and ventrally; its tibia with a dense ventral band of fine moderately long, nearly erect pile and 7 or 8 dorsal bristles. At the apex of the middle tibia is a stout ventral lobe or medial process containing a row of 4 stout, spinous setae. Anterior femur with only dense, short, fine pile ventrally and posteriorly; its tibia has brushes of pile similar to those of the middle tibia. It has 8 or more dorsal bristles; the apex is without spine. Pulvillus well developed; empodium long and basally stout; claws sharp.

Wings: The wings are large, long, wide basally and gradually tapered to a rather pointed apex. Marginal cell narrowly open. The anterior branch of the third vein well above the wing apex, the second submarginal cell is quite narrow towards the base, and near the base is a strong, basally extended spur vein. The first posterior cell is narrowed apically. The upper end vein of the discal cell is quite short, lower end vein long, and carried parallel to the wing margin. Fourth posterior cell and anal cell each closed and with a long stalk. The second basal cell ends in 2 veins; alula large; ambient vein complete.

Abdomen: The abdomen is robust, especially toward the base and as wide as the thorax, strongly tapering to the apex in both sexes. Wings as long as the abdomen in the female, somewhat longer in the males. In the male 8 tergites are present, the eighth only one-fourth as long as the seventh. Six tergites present in the female, the seventh and eighth are distinctly incorporated in the ovipositor. Pile of abdomen dense, but quite short and appressed over the middles of the last 5 tergites; the pile in longer, but still dense and distinctly appressed in matlike tufts on the first 3 tergites and the sides of the remaining tergites. In some species the dense mat of pile over the middle of the first 3 tergites is lacking, but is present in the type of genus. Bristles are absent. Male terminalia comparatively short, not rotate. The epandrium is developed into a pair of exceptionally large, divergent, posteriorly produced, rounded, arched lobes or superior forceps which turn obliquely downward and enclose the relatively small gonopod. The divergence of these structures exposes the paired, large, elongate, spatulate, bluntly rounded, apposed proctiger. Hypandrium greatly reduced. The whole terminalia usually covered and obscured by dense mats of very long, coarse pile and bristly hairs, arising both from its own structures and from the end tergites; eighth tergite usually recessed and hidden. Female terminalia elongate and rather compressed dorsoventrally with sharp, thin, lateral edges; the seventh tergite is slightly longer than the eighth; acanthophorites and spines absent.

Distribution: Australian: *Phellus glaucus* Walker (1851); *olgae* Paramonov (1953); *piliferus* Dakin and Fordham (1922).

Genus *Obelophorus* Schiner

FIGURES 28, 401, 805, 814, 1654, 1877

Obelophorus Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 672, 1866. Type of genus: *Dasypogon terebratus* Macquart, 1849, by original designation.

Very large robust flies. Characterized by convex protuberant face with abrupt ridge shortly below the antenna. The swollen part of the face has a dense, wide, medial band of long bristles and bristly pile. The abdomen, the posterior, anterior and ventral part of the thorax are characterized by dense matted pile. The legs are also provided with brushes of bushy pile. The genus is also recognized by the appendiculate vein at base of the second submarginal cell and the rather pointed wing which is broad basally, together with the long, slender ovipositor of the female. These flies are unquestionably related to *Phellus* Walker from Australia, because the antenna and the wing pattern are virtually identical. The chief differences lie in the shorter abdomen and different character of the female terminalia and especially in the short palpus; in *Phellus* the palpus is nearly as long as the proboscis and slightly sigmoid. Length 33 to 45 mm.

Head, lateral aspect: Face strongly protuberant, except on the upper fifth, which is only shortly produced and plane with the eye margin. Below the face is abruptly produced and the lower portion is gently convex. The eye is comparatively short, more narrow below, due chiefly to a moderate anteroventral recession. The occiput is well developed, obliterated at a point shortly below the vertex; laterally it becomes more extensive a short distance back from the eye margins; it is quite prominent ventrally, accentuated by the eye recession. Pile of occiput coarse and dense, short on the upper half, becoming progressively longer below; bristles are restricted to the upper medial corners of the eye, where there are some four pairs which are subproclinate. Proboscis directed nearly forward or slightly downward; it is stout, robust, subcylindrical with obtuse apex; its height is increased by the unusually prominent high medial ridge; it bears a medium crease below; it has fine pile at the apex and below and numerous, long, stiff hairs ventrally on the basal two-thirds. Palpus clearly of two segments, the first hemicylindrical and excavated, the second nonporate and bearing numerous bristly hairs extending upon the apex. Antenna attached at the upper third of the head; rather slender, approximately the same length as the head. The first segment is a little longer than the second and more robust, the third 2½ times as long as the first two combined, slightly dilated beginning at the basal third, gently tapered near the apex, and carrying a stout, tapered microsegment twice as long as its width and provided with a short, distinct, dorsal spine. The first segment more robust than the second, and carries abundant, long, bristly pile on all sides except the middle and 3 slender bristles below. Second segment with 3 or 4 short bristles dorsomedially and 2 ventromedially.

Head, anterior aspect: Face below antenna less than one-third the head width and divergent below. The subepistomal area is short, oblique, well concealed by the palpus and the mystax. The face is thickly, coarsely appressed pubescent and bears, except close to the eye margins and upon the plane area beneath the antenna, a rather dense mystax of stiff hair with slender intermixed bristles of progressively increasing length towards the lower part of the face. Front short, not pubescent, with a tuft of dense pile above and lateral to the antenna; sides of the front with a broad band of numerous, long, slender bristles. The vertex is rather deeply excavated, with strongly sloping sides, the ocellarium small, with steep sides and large ocelli, and bears across the middle and posterior portion 10 to 12 pairs of laterally divergent, slender bristles. Eye facets scarcely enlarged.

Thorax: The mesonotum and humerus are set with abundant, stiff but fine, suberect pile, bristly in character, leaving much of the mesonotum bare and shining; it is not quite twice as long as high. The margins bear the following complement of rather short bristles of medium strength: 2 weak posthumeral; 4 notopleural with sometimes 4 or 5 additional very slender bristles lying between these, and 7 or 8 supraalar, most of them slender. On the postalar is abundant stiff pile with about 18 long bristly hairs intermixed. Scutellum with dense long pile on the disc and the upper margin; the lowermost elements might be considered very weak bristles; surface convex. The propleuron everywhere bears dense, long tufts of matted, fine pile; bristles absent on the collar, but thick, long pile present. Bristles absent everywhere on the pleuron; the posterior upper mesopleuron with a dense tuft of fine, medium length pile; the anterior and upper posterior sternopleuron and the metapleuron, each bear dense tufts of pile; pteropleuron and hypopleuron apilose. Metanotal slopes strongly bullose but micropubescent only. Sides of metasternum pilose, the metasternum with long pile, the postmetacoxal area membranous but reduced in extent to a very small triangle; anterior basalare with a conspicuous tuft of long dense pile.

Legs: Femora and tibiae stout, without being swollen. The pile is dense, matted and brushlike on all sides. The bristles are obscured by the density of the pile. The following complement of very stout, moderately long bristles is present: hind femur with 3 or 4 dorsolateral, 2 subapical dorsal, 1 subapical dorsomedial, and on the ventrolateral margin 8 which extend back to the basal third, at which point is a cluster of some 6 or 8. The hind tibia bear 5 or 6 dorsolateral, 2 dorsomedial at the middle and beyond, 2 lateral and distal, and 5 ventral bristles confined to the outer half. Middle femur with a loose cluster of 7 anterodorsal bristles just beyond the middle, also 2 posteroapical ones. Midtibiae with 2 or 3 dorsal bristles, 1 posterior and 1 anterior near the middle, besides 1 or 2 at the outer third. No apical spur present at apex of midtibia in either sex. The anterior femur has a conspicuous, long cluster of subappressed, stout bristles ventrally at the base with at least 10 elements. Anterior tibia bears 7 or 8 dorsal bristles, 5 or 6 slender posterior bristles; a medial tibial brush of dense setae is restricted to the anterior pair, absent on the hind pair; anterior tibial apex without spine. All tarsi short; the pulvillus well developed; the empodium long, slender and somewhat bladelike, the claws stout and sharp.

Wings: The wings pointed apically, unusually broad basally. Marginal cell open but narrowed to two-thirds its greatest width. The anterior branch of the third vein ends well above the wing apex and is appendiculate at its base. The first posterior cell is widely open, the fourth closed and stalked, the vein ending this cell and the lower end vein of the discal cell are drawn out along the wing margin in a nearly straight line. The anal cell is closed with a long stalk; middle end vein of the second basal cell very short or absent; alula large, ambient vein complete.

Abdomen: The abdomen is robust, as wide as the mesonotum, the apparent width greatly increased by the extraordinarily dense, long, matted, lateral pile, which becomes equally dense but shorter across the middle of all the tergites except the first. Sides of the first tergite with coarse, long pile only. Male with 7 tergites and in addition a very narrow, liplike exposure of the eighth tergite. Female with 6 tergites, the seventh and eighth incorporated into the narrow subtriangular ovipositor, the eighth being strongly compressed dorsoventrally. Apex still more narrow. Male terminalia moderately large and conspicuous, but distinctly shortened, obtuse, subtruncate, exposing internal structures. These terminalia are directed upward and not rotate. The superior forceps comprise nearly the upper half; the hypandrium forms an arching, lateral hemicylinder, meeting the superior forceps; if gonopods are present they are completely enclosed. I have studied a series, but have not had specimens to dissect. Wings in the female reach to the end of the ovipositor and in the male are considerably longer than the abdomen.

Distribution: Neotropical: *Obelophorus landbecki* Philippi (1865); *terebratus* Macquart (1849). Both species from the Chilean subregion.

Genus *Psilozona* Ricardo

FIGURES 46, 402, 840, 849, 1635, 1890, 1891, 1907

Psilozona Ricardo, Ann. Mag. Nat. Hist., ser. 8, vol. 9, p. 157, 1912. Type of genus: *Psilozona albitarsis* Ricardo, 1912. Designated by Hardy, 1921.

These flies are of medium size or slightly larger and are related to *Phellus* Walker. They are characterized by the very broad wing base, apically pointed; the appendiculate vein at the base of the second submarginal cell; besides the exceptionally wide head, which is considerably wider than the thorax. The midtibial spur is present. They are separated from other Dasypogoninae by the absence of spines on the female terminalia and absence of spine on the anterior tibia. From *Phellus* they are distinguished by the abdomen being narrow basally and the presence on female terminalia of numerous, short, spinous bristles. Length 18 to 22 mm.

Head, lateral aspect: The face is comparatively short, very short below the antenna and nearly straight in profile; the ventral portion is exposed chiefly because of the posterior recession of the eye. The eye is more than usually long, strongly convex anteriorly, gently convex posteriorly over the middle portion but rounded and anteroventrally recessive below and above. Pile of the occiput dense, fine and abundant over the whole occiput, becoming longer ventrally; bristles are absent although the dorsal pile becomes slightly stiffened in character. Proboscis short and robust basally, rather narrowed and attenuate apically but the apex truncate; the base has numerous short, fine hairs, the apex with minute short pile. The palpus is exceptionally long and cylindrical and reaches almost to the apex of the proboscis; the basal segment is quite short, the first segment fully cylindrical and not excavated; the second not porate and with unusually thick, dense bristles over the whole surface and apex. Antenna attached at the middle of the head, moderately elongate, the first segment nearly twice as long as the second, a little swollen towards the base; second segment beadlike; third segment narrow and attenuate basally, slightly swollen and dilated from the base and widest near the apex; it carries two microsegments, the first quite short, the second longer, only slightly narrowed apically and carrying in turn a short, apical spine. The pile of the first antennal segment consists of numerous, long, bristly hairs dorsally and numerous, still longer, slender bristles laterally and ventrally; apex of the second segment dorsally with two fine, long, bristly hairs and with one or two below.

Head, anterior aspect: The subepistomal area is large, but nearly horizontal, quite concealed by the palpus and facial bristles; the face is coarsely pubescent laterally but may be polished and bare over the middle third. Pile absent on the upper half but with a few stiff, bristly hairs laterally opposite the anterior epistomal margin. Lower half of face with numerous long bristles, most of them extending beyond the proboscis; the more ventral elements are stout, the dorsal and lateral bristles slender. Front broad, flattened across the middle, gently sloping laterally from the eye; it is bare, polished, the lateral portion with numerous, slender, moderately long, bristly hairs. Vertex deeply excavated, the ocellarium unusually large and wide with gently sloping sides. A transverse band of bristly pile stretches completely across the ocellarium between the ocelli and additional similar pile occurs between and behind the posterior ocelli. Anterior eye facets only moderately enlarged.

Thorax: The mesonotum is pollinose, long and moderately convex, with fine, erect, bristly pile; acrosticals absent. The pleuron has minute, appressed micropubescence; humerus pilose. There are some, stout, mesonotal bristles present on the notopleuron, 1 postsupraalar and 2 or 3 postalar; scutellar margin with 2 or 3 pairs. The lateral slope of the metasternum has dense, long pile posteriorly; ventral metasternum strongly chitinized, with abundant, fine, long pile; postmetacoxal area membranous.

Legs: The hind femur and tibia are elongate; this femur is slightly dilated and densely appressed setate. It has the following bristles: 1 dorsolateral, 1 dorsomedial subapical, and 1 lateral near the apex; its tibia has 3 to 5 dorsomedial, 5 ventral, 3 dorsolateral, and 4 minute, short, medial bristles; tibial apex with 5 ventral, 1 lateral, 1 dorsolateral, and 2 medial bristles. The midfemur is considerably thicker than the hind femur, shorter, and bears 1 strong, anterior subapical, 2 adjacent, posterior subapical bristles; its tibia with 6 posterodorsal, 4 exceptionally long anterodorsal, 4 posteroventral bristles, besides a dense ventral fringe of long, erect pile and similar shorter dorsal pile; apex of this tibia with several short bristles anteriorly and a short apical lobe. Anterior femur with 2 to 4 stout, posterodorsal bristles; its tibia similar to the middle pair, and also without apical spine. All tarsi end in bladelike empodium and well developed pulvillus; claws sharp.

Wings: The wings are broad at base, becoming somewhat narrowed or pointed but rounded apically. The base of the second submarginal cell has a distinct spur vein. Venation very similar to *Phellus*. Ambient vein complete.

Abdomen: The abdomen is elongate, subcylindrical basally, often a little widened on the distal half or sometimes without such expansion. There are eight tergites in the male, the seventh half as long as the sixth, the eighth less than half as long as the seventh. Female with six tergites, the seventh and eighth forming a thick, obtuse ovipositor, which is a little compressed laterally, but not conspicuously, leaving the dorsal half strongly convex; fifth and sixth tergites nearly equal in length and the seventh and eighth also each nearly as long as the sixth. Pile of the abdomen short, abundant, subappressed and setate, the sides of the first two tergites with numerous fine, long, erect hairs; bristles absent. Male terminalia moderately large, not rotate, the superior forceps completely formed, but apposed and bluntly rounded, the hypandrium short. Female terminalia thick and composed of the seventh and eighth tergites, which are nearly as long as the proceeding segments, and also the short ninth and tenth, the ninth extremely short; the tenth is covered with many fine, stout, erect, bristly setae.

Distribution: Australian: *Psilozona albitarsis* Ricardo (1912); *nigritarsis* Ricardo (1912). Both of these species are from Queensland.

Tribe Chrysopogonini

This is a small tribe of mostly medium size flies restricted to Australia. They are immediately distinguished by the presence of a notopleural tubercle carrying a short, heavy spine and also by the form of the proboscis, which is elongate, apically pointed, slightly but distinctly arched, and the concave aspect is directed toward the ventral side; it shows a high, thin, dorsal ridge. Moreover, spines of the type found in *Dasypogon* Meigen are lacking on the female ovipositor. The ninth tergite of the male consists of a generalized, uncleft structure with forceps absent. All posterior cells and anal cell open. These flies range from black to bright golden pollinose, or sometimes reddish forms and occasionally they are of large size. The palpus tends to be large, clavate, with very large, apical orifice. All of the members of this tribe possess the anterior tibial spine or spur with the exception of *Codula* Macquart.

Because of the similarity in notopleural tubercle and in the presence of the same arched, pointed, keeled proboscis, I believe that *Codula* Macquart must be placed in this small tribe, all members of which are Australian. I have included *Chryseutria* Hardy here provisionally in spite of the spines of the female genitalia. I have seen no specimens of this genus *Chryseutria*. When I visited Hardy, he stated that the unique type of this genus is lost. Is it possible that through *Codula* Macquart on the one hand and *Chryseutria* Hardy on the other, we see a group which has a surviving member in three different stages of the past history of the group?

KEY TO GENERA OF CHRYSOPOGONINI

1. Anterior tibia without trace of spur or spine. Small or medium size flies with club-shaped abdomen, black with extensive, lighter areas of golden pollen and the anterior half of the wing brown in color like some Hymenoptera. CODULA Macquart
   A well developed tibial spine present and accompanying basitarsal modification 2
2. Third antennal segment bearing a spoon-shaped, semifused microsegment holding a short, stout spine. First posterior cell open, or closed with a long stalk. CHRYSOPOGON Roeder
   Third antennal segment bearing a conical microsegment with apical spine 3
3. Female terminalia without spines and of the same elongate construction as in *Chrysopogon* Roeder. Third antennal segment wide, oval and large, a little swollen laterally; apical segment and spine quite minute. OPSEOSTLENGIS White
   Female terminalia with conspicuous spines; tibial spur and notopleural spines present . . . . . CHRYSEUTRIA Hardy

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Genus *Chrysopogon* Roeder

FIGURES 6, 7, 14, 400, 822, 831, 995, 1599, 1640, 1655, 1808, 1925, 1940, 1944, 1945

Chrysopogon Roeder, Berliner Ent. Zeitschr., vol. 25, p. 213, 1881. Type of genus: *Chrysopogon crabroniformis* Roeder, 1881, by monotypy.

Large, frequently bright colored and pollinose flies with robust abdomen and elongate, slender antenna. They are readily recognized by the stout tuberculate spine on the notopleuron, the protibial spine, and the absence of spines on the female acanthophorites. Length 12 to 27 mm.

Head, lateral aspect: The head is rather long, due chiefly to the prominence of the face, the eye being short. Face conspicuous and well developed, becoming gradually more extensive below. The occiput is relatively short and expanded only sublaterally from the eye margin. Its pollen is confined to the outer margin, the pile abundant, long, but coarse and bristly; the pile is even more dense dorsally, where it might be described as quite weak bristles. Proboscis moderately long, stout at the base, peculiar and characteristic because of its arched, dorsal and concave, ventral surface and its attenuate, pointed, dorsoventrally flattened apex. It has an exceptionally strong, dorsal keel, which grows higher and ends a short distance from the base. The apex has coarse pile and beyond the middle of the ventral margin there are 2 or 3 characteristic, long, divergent bristles on either side; the base has straggly hairs. Palpus large, of 2 segments, the end segment with angular attachment, conspicuous, open pore, and the first segment hemicylindrical and excavated; both with numerous bristles. Antenna attached at the upper fourth of the head, elongate, slender, a little longer than the head; the first 2 segments are short, subequal; the third segment barely tapered, with large, short, spoon-shaped microsegment, which bears a dorsally exposed spine.

Head, anterior aspect: Face wide; width below the antenna at least one-third of the head width; diverges slightly below the antenna. The face is partly bare or uniformly densely pubescent. Face either without pile or with numerous soft fine hairs throughout its length. Bristles of the face confined to the oral margin, numerous and spread in 1 or 2 rows, or rarely with a partial medial row of bristles. Subepistomal area nearly horizontal and concave. Front short, pollinose, with bristly pile dorsolaterally. Vertex very little excavated; the large ocellarium has sloping sides and large ocelli, and only bristly hairs are present.

Thorax: The thorax is densely pollinose, with some areas bare on mesonotum or pleuron or both. The mesonotum is long, comparatively low and gently arched. The pile in the type of the genus is long, only laterally on the humerus and on parts of the pleuron. The pile of the acrostical and dorsocentral rows is quite minute. There are a few scattered, long, fine hairs on the posterior mesopleuron and weak numerous bristles on the metapleuron; propleuron with abundant long hairs, fine or stiff and coarse. In some species the acrostical and dorsocentral pile is long and bristly. Metanotal callosity exceptionally convex and bullose, densely micropubescent, sometimes with a few long hairs. Scutellum flat, wrinkled, micropubescent, virtually without pile, the margin with a row of fine vertical setae.

Legs: The femora are elongate, bare, rather stout. The hind femur is slightly dilated distally, its tibia more so. Hind femur with short, stout bristles laterally, 6 in number, none at apex. Hind tibia with similar bristles, 2 ventromedial near the base, 4 lateral, which are stout, and 2 dorsomedial on the basal half; at the apex the bristles are confined in the type of genus to the ventral half where there is a cluster of 8 bristles. Middle femur with 2 short, stout bristles on the anterior half and 2 posteriorly; its tibia has 9 posteroventral, 2 anterodorsal at the base, 4 anterior, and 3 ventral bristles. Anterior femur has only one bristle in the middle posteriorly, its tibia has 10 posteroventral, and 8 posterodorsal and 8 anterdorsal bristles. Apex of the anterior tibia with a sharp, long, stout spur on a low protuberance. Basitarsus with several, stout denticles but with no elevation. The claws are only moderately sharp, the pulvillus well developed, the empodium swollen at base and also flattened.

Wings: The wings are elongate, the marginal and all of the posterior cells, except the first, widely open. First posterior cell closed with a long stalk, anal cell narrowly open, or almost closed. The second basal cell ends in 2 veins, the upper end vein of the discal cell short and in the type of genus almost eliminated.

Abdomen: The abdomen is broad, of robust form and towards the base only slightly convex, becoming more cylindroid distally. The pile is scattered and setate, appressed or erect. The type of genus is pollinose; some species are bare except for lateral spots, or the surface sometimes coarsely punctate. Males with 6 well developed tergites, the seventh and eighth short or in some cases nearly concealed. Females with 6 well developed tergites, the remainder recessed beneath the sixth. Sides of the first tergite with a single, very stout, tuberculate bristle and some fine hairs. Male terminalia rotate one-fourth to the left, the epandrium undivided, arched into a hemicylinder and nearly truncate. Gonopod large, subcylindroid, and a little narrowed apically. The interior structures are exposed below because of the reduced or nearly absent hypandrium. Female with the last 3 tergites laterally compressed and protrusive; the ventral plate is likewise very strongly compressed and almost as long as the dorsal portion. Acanthophorites and spines absent; some species have short, stout spinous setae of a different type.

Distribution: Australian: *Chrysopogon albopunctatus* Macquart (1844); *crabroniformis* Roeder (1881); *conopsoides* Fabricius (1775); *fasciatus* Ricardo (1912); *horni* Hardy (1934); *mulleri* Roeder (1892); *nigricans* White (1914); *pallidipennis* White (1917); *punctatus* Ricardo (1912); *queenslandi* Ricardo (1912); *rubripennis* White (1917); *rufulus* White (1914); *splendidissimus* Ricardo (1912).

Genus *Opseostlengis* White

FIGURES 8, 407, 820, 829, 1646, 1647, 1926, 2006

Opseostlengis White, Papers Proc. Roy. Soc. Tasmania, 1913, p. 269, 1914. Type of genus: *Opseostlengis insignis* White 1914, by monotypy.

Flies which are unusually bare and with greatly reduced bristles, the abdomen comparatively wide and flattened, with dense short microsetae. Related to *Chrysopogon* Roeder; the antenna bears a short, straight, conical, spinous subsegment, and like that genus there is a single, stout, tuberculate, notopleural spine. Length 15 to 20 mm.

Head, lateral aspect: Face short above, slightly more prominent below. Occiput narrow in profile but more swollen near the foramen. Pile moderately long and stiff and everywhere bristly. On the occiput opposite the lower corner of the eye there is an especially abundant patch of long, slender bristles. The proboscis is similar to that of *Chrysopogon*. Palpus clearly of 2 segments, the second segment arising at a slight angle, short, distally swollen, with a large gaping pore; the first segment is hemicylindrical and excavated. Antenna attached at the upper fourth of head, of moderate length, the first 2 segments of equal length, the third with its short style, approximately equal to 1½ times the length of the first 2 segments combined. The third segment is laterally compressed, broadly oval, a little narrowed towards the base, again narrowed at the immediate apex and bearing a rather large, but short sharp conical spine.

Head, anterior aspect: Head width 1½ times the height. Face below antenna two-sevenths head width, expanding below to one-third head width. The face is pubescent without pile; epistomal margin with a single row of very stout, closely adjacent, slightly curved, rather long, stout bristles directed obliquely downward. Front slightly divergent, the vertex equally slightly convergent. Front bare except laterally and below, with medial fissure, and bearing on each side 6 weak bristles. Vertex moderately excavated, the ocellar protuberance large with slanting sides and bearing 6 or 7 pairs of short, weak bristles. Eye facets centrally enlarged

Thorax: The thorax with fine micropubescence, the mesonotum bears scanty pile, fine and setate, a sparse acrostical row with apilose stripe on either side. The dorsocentrals are scanty opposite the humeri, but abundant and short beyond, becoming no longer posteriorly. Humerus with some stiff pile. Notopleuron with a stout, sharp spine set in a heavy circular protrusive base. Supraalar region with numerous stout bristly setae, postalar region similar and with 1 weak short bristle. Scutellar margin with a row of 20 or more short, stiff, bristly setae, a few others scattered over the transversely ridged, rugose, pubescent surface. Propleuron with rather abundant pile on the ventral element. Collar with weak bristly pile. Mesopleuron with numerous, short, bristly setae; others present on the sternopleuron but pile absent on the peteropleuron and hypopleuron. Metapleuron with 5 or 6 weak slender bristles; metanotal slopes unusually bullose, without pile. Metasternal slopes with numerous, long, fine hairs; postmetacoxal area membranous.

Legs: The legs are unusually stout, the thickening extending more or less throughout the femora, but slightly greater distally on the hind pair. Bristles numerous but for the most part short. All of the coxae with weak, bristly pile only. Hind trochanter with 4 stout, spinous bristles. Pile of hind femur scanty, flat appressed, fine and setate, with 4 or 5 erect, slender hairs below and some appressed setae distally. This femur bears a cluster of 3 or 4 short, stout bristles medially at the apex, 1 long one at the dorsolateral apex, 2 short bristles laterally at the apex and besides it bears a row of 10 exceedingly stout, sharp, tuberculate, almost conical, spinous bristles on the middle of the lateral margin; they bear 9 similar elements ventrally and 6 similar, shorter bristles in the middle medially. Hind tibia bears short, stout bristles as follows: 5 or 6 dorsal, 6 dorsomedial, 6 somewhat longer lateral, 3 medioventral, and 2 ventrolateral. Anterior femur with 1 bristle anteriorly at the basal third, an oblique row of 5 anteriorly at the apex, 2 close together posteriorly in the middle, and 8 ventrally on the basal three-fifths, the first double. Anterior tibia bears short spines, except for 2 long, ventral, stout, oblique ones located at the middle and outer fifth; there is a double dorsal row containing 20 or more, a posterior row of 7 and an anterior row of 5 restricted to the basal half. Tibial apex with several bristles and a stout, rather bluntly pointed, straight spine, apposed to metatarsal denticles. All tarsi end in long pulvilli and stout empodium and sharp claws.

Wings: Marginal cell open. Fourth posterior cell open, narrowed to about two-thirds of its maximum width. Anal cell widely open; second basal cell ends in 2 veins with the middle vein short. Alula large, ambient vein complete.

Abdomen: The abdomen is robust, as wide as the mesonotum on the basal tergites, its width slightly increasing to the end of the fourth segment and obtuse or truncate apically; basal tergites rather strongly flattened. Seven tergites present in the male, the sixth long, the seventh quite short. Pile of abdomen abundant, short, coarse, appressed and setate, arising from punctures and the abdomen almost uniformly microrugose, with many small transverse fissurelike creases. Sides of all the tergites with only short, appressed setae. Bristles present only on the first tergite where there is a single stout, rather short, spinous bristle. Male terminalia moderately conspicuous but not large or extensive; rotate one-fourth to the right and similar to *Chrysopogon*.

Distribution: Australian: *Opseostlengis insignis* White (1914).

Genus *Chryseutria* Hardy

Chryseutria Hardy, Proc. Linnean Soc. New South Wales, vol. 53, pt. 4, p. 471, 1928. Type of genus: *Chryseutria nigrinus* Hardy, 1928, by monotypy.

I quote Hardy's description.

> Antennae with four segments and a minute apical spine; moustache confined to a row of oral bristles. Thorax with a lateral spine just anterior to the transverse suture as in *Chrysopogon:* prothorax with ventral plate clearly defined; scutellum without bristles. Abdomen rather long and parallel-sided, each segment slightly bulging on the dorsal area; genital spines of the female conspicuous; first segment with an apical lateral spine. Legs with a spur on the anterior femora[1]. Wings with all marginal cells open.
>
> This genus differs from *Chrysopogon* and its allies in the structure of the female genitalia and in the more generalized type of abdomen being parallel-sided and more elongate, whereas on *Chrysopogon* it expands from the base towards the apex. From *Thereutria* and its allies it is distinguished by the presence of the thoracic spine and again in the abdomen, that of *Thereutria* tapering towards the apex. The genus belongs to the Saropogonini.

Description taken from 2 females. Length 14–15 mm.

Distribution: Australian: *Chryseutria nigrinus* Hardy (1928).

This genus is readily distinguished in the female sex from other Chrysopogonini by the combination of notopleural spine and acanthophorite spine. The males are unknown.

Genus *Codula* Macquart

FIGURES 17B, 21, 410, 821, 830, 1637, 1642, 1664, 1918, 1964

Codula Macquart, Diptères exotique suppl. 4, p. 70, 1849. Type of genus: *Codula limbipennis* Macquart, 1849, type by remainder. Macquart included two undesignated species in this genus. One has been removed to *Brachyrrhopala* Macquart.

Flies of medium size or smaller. Characterized by a nearly straight face in which there is a shallow, transverse depression or concavity on the lower third; pile and bristles are absent except for a transverse fringe along the epistomal margin and the antenna are exceptionally slender and elongate with apical spoonlike microsegment. They have an extremely bare appearance, but are short pilose and the abdomen has a true pollinose surface and it is subclavate. The anterior half of the wing is margined with brown, as in certain wasps. The arched proboscis and the notopleural spines are similar to *Chrysopogon* Roeder but the absence of a tibial spur at once separates them from this genus. The venation is highly generalized with all marginal cells, all posterior cells and anal cell open. The only wing specialization appears in fused veins at the base of the second posterior cell. Length 12 to 18 mm.

Head, lateral aspect: Face unusually prominent, slightly elevated and convex on the upper half, the elevation is approximately equal at the epistomal margin and there is a distinct transverse concavity between them. The eyes are without either anterior or posterior recession, are unusually flattened anteriorly and therefore only shallowly convex. The occiput is short, but is slightly more prominent towards the foramen. It is at least as prominent if not more extensively developed near the vertex, and the eyes both laterally and dorsally are produced a considerable distance from the occipital margin. Pile of the occiput restricted to bristly hair or slender bristles on the lower portions, and to distinct though slender bristles throughout the entire lateral and dorsal border of the occiput; these bristles form a narrow band of several irregular rows; they become more stout towards the vertex. Proboscis directed straight downward in the 4 specimens before me, unusually long, strongly compressed laterally; much of its height is basal and in the middle the height is due to the unusually high medial ridge which is flared open basally. The posterior margin of the proboscis is concave, the dorsal margin convex, the whole structure attenuate apically and with a narrowly rounded apex, which carries only 2 or 3 stiff, ventral hairs. Palpus clearly of 2 segments, unusually large, both segments robust and short, the first cylindrical but with a distinct dorsolateral fissure, the second clavate with many stiff bristles medially, ventrally, and ventrolaterally, and with a large apical pore.

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[1] Hardy undoubtedly meant anterior tibiae, not femora.

Antenna attached at the upper fifth of the head, long and slender and considerably longer than the head. First 2 segments nearly equal. The third segment slightly compressed laterally, of nearly uniform thickness, almost twice as long as the first 2 segments combined and bearing apically a spoon-shaped microsegment turned dorsally and carrying within a spine. Pile of the first 2 segments composed of numerous, fine, appressed hairs dorsally, 2 or 3 similar hairs below and on the second segment apically a pair of stiff setae.

Head, anterior aspect: Face width below antenna one-third the head width and slightly divergent below, subepistomal area large, slightly oblique. Face without pile, the epistomal margin with a transverse row of 7 or 8 pairs of stiff, moderately long, slightly curved bristles which are directed straight downward. The front is of the same width as the face, short, with a low, convex elevation on either side, which merges with the ocellarium. Vertex slightly narrowed but little excavated, the ocellarium quite large, extending well above the eye profile and carrying 2 or 3 pairs of weak, medial and several similar postocellar hairs. Eyes with the central facets enlarged.

Thorax: Mesonotum broadly pollinose over the greater part; the margin from the humerus to the notopleuron, the postalar area, the scutellar margin, metanotum, except the prominent bulla, the humerus, and almost the whole of the pleuron, bare and shining. Mesonotal height two-fifths its length. Pile of mesonotum scanty, fine, short, curled and suberect; longer laterally. A row of acrostical bristles present, with wide, apilose band on either side. The dorsocentral bristles are short and weak throughout. The notopleuron has a stout, sharp, tuberculate, basally swollen spine. Margin of the scutellum with a few, short setae; its disc slightly convex and with some very short, fine pile and several transverse grooves. Propleuron with long, stiff pile, the collar with weak bristles. Upper mesopleuron with a few, stiff, bristly setae, the anterior prolongation and the upper sternopleuron with a few scattered hairs. Metapleuron with only 2 or 3 weak bristles and 2 or 3 additional, slender hairs. Metanotal slopes micropubescent only; metasternal slopes and metasternum with 6 to 10 long, slender hairs each. Postmetacoxal area membranous.

Legs: The femora are moderately stout. The hind femur bears a few, minute, appressed, scattered hairs dorsally and apically, 6 short but stout spines laterally and 1 at the subapex medially. There are about 40 scattered erect fine hairs over the whole ventral surface. The corresponding erect fringe of the hind tibia is much more dense but confined to the basal half; distally there is a brush of setae. Hind tibia has 5 or 6 short, stout, dorsal spines, 4 somewhat longer lateral spines and the apex with 6 stout bristles. Middle femur with 3 stout apical posterior and 3 stout anterior basal bristles; dorsal bristles are minute and 6 in number and include 2 short basal, 1 long middle and a still longer anterior bristle beyond; posterior bristles exceptionally stout but short, 7 in number. The anterior femur has a stout middle and apical posterior bristle, a stout middle anterior bristle. Ventrally both anterior and middle femora have only a scattered fringe of long, fine hairs. Anterior tibia with 5 stout, short, dorsal, 11 short, stout, anterodorsal, 8 short stout, posterior, and on the outer third posteroventrally 2 longer stout bristles. Apex of anterior tibia with 8 stout bristles and no spine. Pulvillus large; empodium long; and claws stout and sharp.

Wings: Marginal cell open by a distance equal to the length of the anterior crossvein; anterior branch of third vein ends at wing apex, second submarginal cell arched at base. The first posterior cell widely open, fourth posterior cell open but narrowed to two-thirds of its maximum width; anal cell unusually widely open; second basal cell ends in three veins. Alula large, the ambient vein complete. Anterior half of wing strongly tinged with sepia.

Abdomen: The abdomen is drooping and pendent, robust, and at the base as wide as the mesonotum; the fourth and fifth segments considerably wider, the first 3 thickly punctate, the sides of the first but little swollen. Six tergites are present in the male, the sixth long, the seventh concealed within it, the whole abdomen rather strongly subcylindrical and convex; the pile is abundant on the basal part of the abdomen but quite dense posteriorly, short, suberect and fine; lateral margins with only slightly longer pile. Spines absent except upon the first tergite where there is a single pair of short, stout spines. Sternal pile long and stiff. There are 6 tergites present in the female; the seventh and eighth tergites in the female are quite short, laterally compressed and forming part of the ovipositor. Male terminalia protrusive but short and not very conspicuous and not rotate. Female terminalia slightly compressed laterally, incorporating 3 tergites of nearly equal length, but decreasing size; ventral plate notched deeply at the apex, but only one-sixth of its length; spines and acanthophorites absent.

Distribution: Oriental: *Codula sumatrana* Enderlein (1914), from Indo-Malaya.

Australian: *Codula limbipennis* Macquart (1849); *vespiformis* Thompson (1869).

Tribe Damalini

This is a tribe of a few genera of comparatively small flies. Two of the genera, *Damalis* Fabricius on the Asiatic and African continents, and *Holcocephala* Jaennicke in the Neotropical region, each contains a considerable number of species. They are characterized by the open posterior cells, the anal cell closed or open, the simple, tubular and not spiny female terminalia, the absence of spines on the anterior tibial apex. There are exceptionally deep, mediogenal grooves corresponding to the anterior arms of the tentorium. In some of the flies the lower face is strongly suggestive of the Rhagionidae. The antenna is of 2 kinds. In *Damalis* Fabricius and its allies the third segment is small, beadlike, with a very long, fine style or arista; in *Holcocephala* Jaennicke and related genera the third segment is elongate, with 1 or 2 short microsegments and the arista quite stout or lacking. Representatives of both groups occur in each hemisphere.

There is no rational basis whatever for the recognition of a special tribe Trigonomimini as proposed by Enderlein, 1914, based on the presence of 4 submarginal cells, even in part for the inclusion in it of unrelated genera like *Trigonomima* Enderlein and *Townsendia* Williston.

KEY TO GENERA OF DAMALINI

1. Only 4 submarginal cells; hind femur and tibia rather smaller and bearing dense brushes of rather long, fine pile . . . . TRIGONOMIMA Enderlein
   Five submarginal cells present 2
2. Third antennal segment consists of a small, dilated, bulblike basal piece, drawn out apically into an extremely long, bristlelike style, longer than the head 10
   Third antennal segment elongate and well developed, with several types of terminal structures 3
3. Microsegments absent at apex of third antennal segment; apex of this segment bearing a moderately long, apical or subapical bristle and above it a short, spinous bristle, which is apical, more usually subapical to a varying extent. Third segment short or long pubescent but never plumose. DAMALINA Doleschall
   Apex of third segment bearing distinct microsegments . . 4
4. Third antennal segment quite long, with 2 equally wide, cylindrical, short, plumose microsegments whose combined length is greater than the length of the third segment. Wing very broad. Small flies with broad, oval, comparatively flattened abdomen . . . . . MARGARITOLA Hull
   Microsegments of third antennal segment much shorter and not forming a long, densely pubescent, cylindroid structure 5
5. Apex of third segment with a single microsegment 6
   Apex of third segment with 2 distinct microsegments, the more basal element shortest 7
6. Hind feumr, tibia and basitarsus enlarged and bearing a dense brush of long hairs . . . ARTHRITICOPUS Enderlein
   Hind femur, tibia and basitarsus simple. HOLCOCEPHALA Jaennicke
7. Ocellarium with enlarged ocelli and both prominently protruded forward beyond the eye profile; occiput prominent 8
   Ocellarium and its ocelli not extending beyond the eye profile margin. Occiput poorly developed . OXYNOTON Jannsens
8. Third antennal segment comparatively short, more or less attenuate distally, second microsegment bearing a short, apical style; both microsegments not plumose; third antennal segment with several long, plumose to bristly hairs dorsally . . . . HAPLOPOGON Engel
   One or both of the third antennal microsegments conspicuously short plumose 9
9. Basal microsegment not plumose; second microsegment without thick spine; third antennal segment comparatively short, distally attenuate . PAROXYNOTON Jannsens
   Both microsegments usually plumose; second microsegment with a thick spine; third segment usually elongate; face usually with numerous, quite long, bristly hairs, which are extended forward . . . . RHIPIDOCEPHALA Hermann
10. Third antennal segment fully as wide as the second segment and pollinose or micropubescent; postmetacoxal area membranous 11
    Third antennal segment distinctly and considerably more slender than the second segment and polished and bare, beadlike or more rarely attenuate, and always tapering at the apex into the long drawn out style 12
11. Third antennal segment as large as basal segments and about twice as long and pollinose. Front normal, face divergent below. Head long on the lower portion, obliquely flattened above; the facial crease is especially deep. Abdomen short oval. The distally dilated hind femur has a dense brush of fine hairs. Upper section of anterior intercalary vein very short or wanting. Base of fourth posterior cell without a petiole . . . . ORRHODOPS Hull
    Third antennal segment short, nearly orbicular, considerably larger and wider than the second segment. Front with a longitudinal sunken area and upper face with a longitudinal furrow. Mesonotum very densely pilose, the pile virtually concealing the ground color. Upper section of anterior intercalary vein long; last section of fifth vein nearly vertical . . . BROMLEYUS E. Hardy
12. All the coxae so drawn forward that they stand in a nearly vertical row beneath the anterior margin of the mesonotum, the arched band of chitin behind the posterior coxa exceptionally long; mesonotum with long, slender bristles. Head wide and short, the face plane, with numerous, long, stiff hairs on the lower half and bristles absent (subgenus of *Damalis* Fabricius) . ZYGOCOLON, new subgenus
    Coxae placed in more or less the usual position beneath the mesonotum 13
13. Apex of middle tibia with a short but prominent spur or lobe, bearing numerous spinelike bristles; sides of abdomen with a fringe of dense, long, fine pile which is dense but shorter across the middle of the segments. LOPHURODAMALIS Hermann
    Apex of middle tibia simple 14
14. Sides of mesonotum with distinct bristles; male terminalia with a downwardly directed process. LASIODAMALIS Hermann
    Sides of mesonotum without distinct bristles, usually with fine or stiff pile; rather bare, short pilose flies 15
15. Face short, nearly plane, with a row of strong bristles along the oral margin and little or no pile; ocelli set anteriorly before the vertex 16
    Face strongly gibbous, convex and rounded and bearing numerous stiff bristles and bristly hairs over the whole; ocellar protuberance large, set on the vertex; proboscis narrow but unusually short and obtuse, its base considerably swollen (subgenus of *Damalis* Fabricius). PROTODAMALIS, new subgenus
16. Upper margin of occiput produced backward and upward into a conspicuous flange; anterior dorsal part of mesonotum expanded and greatly swollen . . . . AIREINA Frey
    Occiput in no way unusual; mesonotum high but regularly arched anteriorly and posteriorly . . DAMALIS Fabricius

Genus *Damalis* Fabricius

FIGURES 19, 423, 430, 823, 825, 832, 834, 835, 1648, 1649, 1650, 1652, 1882, 1923, 2003, 2034

Damalis Fabricius, Systema antliatorum, p. 147, 1805. Type of genus: *Damalis planiceps* Fabricius, 1805, at this time proposed for the reasons given below. Westwood, 1835, designated *Damalis curvipes* Fabricius, the first of 4 species, which proved to be an empidid, as type of this genus.

Xenomyza Wiedemann, Zool. Mag., vol. 1, p. 60, 1817. Type of genus: *Damalis planiceps* Fabricius, 1805. Designated by Coquillett, 1910, the first of 2 species.

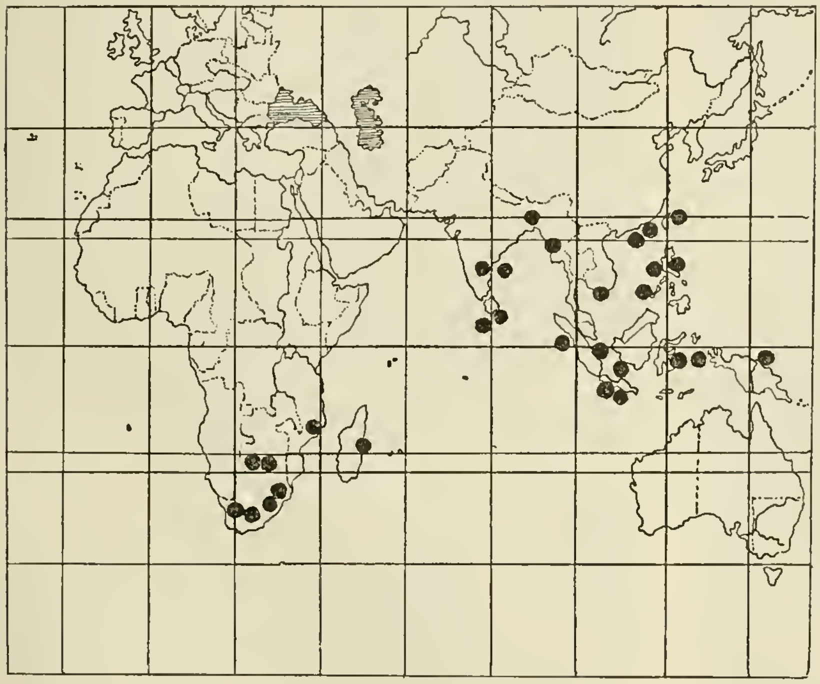
Chalcidimorpha Westwood, Ann. Soc. Ent. France, vol. 4, ser. 1, p. 684, 1835. Type of genus: *Chalcidimorpha fulvipes* Westwood, 1835. Designated by Macquart, 1838, the first of 4 species.

Damalis has two subgenera, *Protodamalis*, new subgenus, and *Zygocolon*, new subgenus.

A peculiar situation arises with regard to the name to be used for this group. Wiedemann examined the four species included in the genus by Fabricius; the first species, *Damalis curvipes*, and the third species, *Damalis quadricincta*, both from South America, he found to be empidids; the second species, *planiceps*, and the fourth species, *myops*, he found to be asilids and from India and Sumatra respectively. Wiedemann (1828, p. 415) ignored *Xenomyza*, treated the two asilids under *Damalis* and assigned the two empidids to the genus *Hybos*.

Because the mass of literature has, with only one or two exceptions, continued to treat these asilids under the name *Damalis*, and because students of the Empididae have uniformly rejected the name *Damalis*, I propose the continuance of the name *Damalis* in the Asilidae, under the principle of conservation of names wherever possible, with *Damalis planiceps* Fabricius, 1805, as type of genus. In further support of this suggestion, I point to the well established names *Lasiodamalis* Hermann, *Lophurodamalis* Hermann, and *Damalina* Doleschall, all in the family Asilidae.

Flies of medium size and of considerable variability, with exceptionally short, wide head composed mostly of the eyes and short face. The face is typically convex and slightly protuberant on the lower half and this lower part is bare and shining with 2, 3, or more pairs of stout, epistomal bristles. The most characteristic feature is an antenna composed of 2 short, beadlike segments, the third segment being often even smaller but carrying a long, slender, bristlelike, terminal style, as long or longer than the proboscis. In addition, the central eye facets are greatly enlarged, the mesonotum unusually high and arched, the wing long and slender, the veins at the base of the fourth posterior cell fused, the anal vein closed and stalked. The wing is often considerably longer than the abdomen. The hind femora is a little swollen and usually has stout, ventral spines.



TEXT-FIGURE 9.—Pattern of distribution of the genus *Damalis* Fabricius.

The genus *Damalis* contains a large Old World group of plastic species, which show considerable structural variability. This variability has been the basis of at least 5 allied genera, some erected for a single species, which should possibly rank as only subgenera. Much of the variation centers around the leg characters and the general proportions. The flies are relatively constant in the short head, the large, greatly flattened eyes, the type of antenna, the very high mesonotum and the elongate wings, which have a rather characteristic shape and venation. Length 10 to 13 mm.

Head, lateral aspect: The head is exceptionally short, about twice as high as long. The face is very short and little exposed in profile; it is sometimes slightly rounded and protruding below. Eyes quite short, wide and strongly flattened, anteriorly convex, sometimes more narrow above and with the posterior margin plane at least over its greater middle portion; the eye is usually not recessive below or more rarely may show a moderate recession. Occiput short in profile or completely obliterated; pile scanty and bristly in some species, in others fine and delicate. The proboscis is laterally compressed, narrowed at the base, wide in the middle and with a moderately high medial ridge; it is pointed apically, gently convex above and slightly concave on the lower margin, with a number of stiff, bristly hairs apically and below; there is a pair of long, divergent bristles ventrally in the middle and a few, fine hairs at the base. Palpus clearly of 2 segments, the second cylindrical, attenuate, not porate and with apical bristles.

Head, anterior aspect: The head is twice as wide as high. Width of face below antenna one-sixth of the head width and slightly divergent below. Subepistomal area small, concave and nearly horizontal. Face typically bare and polished on the lower half, densely pubescent above, or wholly pubescent in some species. The face has short, scanty, scattered pile, and on the epistomal margin 2 pairs of long, stout bristles, or there may be some scattered bristly hairs or slender bristles over the middle face and 2 or 3 rows of long, stout bristles below. There is characteristically a transverse frontofacial groove or depression from which the antenna arise. The antenna is attached just above the middle of the head in profile, the first 2 segments short and beadlike, the third smaller than the second, beadlike, and with a very long, thick terminal style approximately as long as the proboscis. First segment with a quite long, stout, ventral bristle; some shorter additional bristles ventrally and dorsally on both segments. Front extremely short, vertical, the vertex moderately excavated and slightly divergent, the rather low ocellarium placed anteriorly rather than dorsally and carrying 2 or 3 short, weak bristles behind the ocelli. Eye facets exceptionally enlarged anteriorly but not zoned.

Thorax: The thorax is pollinose or sometimes coarsely appressed pubescent. Mesonotum exceptionally high and arched. Pile of mesonotum short, rather scanty, ranging from fine to setate and bristly and usually somewhat appressed; the pile is long in some species. There is a well developed acrostical row of bristly hair separated by a wide, bare space. Dorsocentral bristles may or may not be differentiated anteriorly but posteriorly form 1 or 2 rows of moderately long, slender hairs, or sometimes bristles. Lateral bristles absent except on the scutellum where there are 3 or 4 pairs or sometimes 5 or 6 pairs varying from stiff hairs to long, slender bristles. Scutellum unusually thick and convex, pubescent, often apilose. Propleuron with abundant, long pile; pronotal collar with long, stiff hairs or rarely very slender bristles. Posterior mesopleuron, dorsal and anterior sternopleuron, the pteropleuron, and the metapleuron with numerous, long hairs which on the metapleuron may become slender bristles. Metanotal slopes micropubescent only, lateral metasternum pilose, the ventral metasternum with short pile. The postmetacoxal area is chitinized and moderately wide in many species; in several species it is membranous only. Tegula with bristles. Prosternum not dissociated.

Legs: All the femora moderately stout; the hind femur is distinctly though moderately thickened either in the middle or throughout the entire outer two-thirds and frequently bearing on both ventral margins stout, tuberculate bristles which may be sometimes reduced in number or size. The hind tibia is sometimes stout from the base or moderately slender at the base and swollen towards the apex. Dorsal pile of the hind femur appressed and setate, all pile slender and bristly and elsewhere mostly erect. A prominent characteristic is the elongate, hind trochanters which are greatly swollen distally, much longer than the coxa and protuberant ventrally; this protuberance bears a cluster of long, stout bristles. With latitude the species of *Damalis* will show the following complement of bristles; on the hind femur a ventrolateral row, extending from the base to the apex, of 9 stout bristles which may be reduced to as few as 3 smaller, slender bristles with smaller tubercles; medial surface ventrally with similar but fewer bristles; hind tibia with slender bristles, or bristly hairs, 6 or 7 dorsolateral, 5 or 6 dorsomedial, 3 or 4 long medial, 4 or 5 lateral, and an equal number of ventrolateral bristles. The middle tibia has long, slender bristles, 3 or 4 situated on the anterior, anterodorsal, posterodorsal, posterior, and posteroventral rows. Anterior femur and tibia similar, the tibial apex without a spine. The middle tibia sometimes has an apical, bristle-bearing lobe. All tarsi end in stout, sharp claws, long pulvilli and basally swollen empodium.

Wings: The wings are elongate and slender, always longer than the abdomen. The basal veins of the fourth posterior cell are fused, the anal cell always closed with a long petiole, the marginal cell and all the posterior cells widely open. The alula of moderate length, the ambient vein ends at the anal cell. The species often have the fourth vein sinuous or sigmoid, especially in the more typical members of the group.

Abdomen: The abdomen is broad, flattened or gently convex, varying from as wide as the mesonotum to as wide as the thorax. There are 7 tergites in the male, the seventh one-third to one-half as long as the sixth; 8 tergites present in the female, the eighth one-half as long as the seventh or sometimes fully as long. Pile of the abdomen short, appressed and setate, but considerably longer and erect laterally. Sides of the first tergite with 4 or 5 pairs of slender, weak bristles or with only fine pile. Male terminalia moderately large and rotate one-half; the epandrium is sulcate, with straight or curved, posteriorly or dorsally directed, lateral lobes; the hypandrium undivided or with a medial groovelike fissure. Proctiger often large, long, thrust out at an angle. Female terminalia composed of two small, short, thin, dorsoventrally compressed, adjacent, unmodified dorsal and ventral lobes.

Distribution: Neotropical. *Damalis ?divisus* Walker (1855); *occidentalis* Williston (1901).

Ethiopian. *Damalis annulata* Loew (1858); *cinctipes* Walker (1871); *clavigerus* Bromley (1942); *conspicua* Curran (1934); *elongatus*, new species; *femoralis* Ricardo (1925); *hyalipennis* Macquart (1846); *longipennis* Lowe (1854); *maxima* Hermann (1926); *pallinota* Hermann (1926); *pollinosa* Ricardo (1925); *venustus* Bertolini (1861).

Oriental. *Damalis andron* Walker (1855); *claripennis* Bromley (1935); *compactus*, new species; *erythropthalmus* Doleschall (1858); *felderi* Schiner (1867) *floresana* Frey (1934); *formosana* Frey (1934); *fulvipes* Westwood (1835); *fumipennis* Walker (1855); *fuscus* Walker (1849); *grossa* Schiner (1868); *immeritus* Osten Sacken (1882); *maculatus* Wiedemann (1828); *major* Wulp (1872); *marginatus* Wulp (1872); *myops* Fabricius (1805); *nigella* Wulp (1872); *pallidus* Wulp (1872); *paradoxa* Frey (1934); *planiceps* Fabricius (1805); *saigonensis* Bigot (1878); *scrobiculata* Frey (1934); *signatus* Walker (1860); *speculiventris* de Meijere (1907); *tibialis* Macquart (1838); *vitalisi* Frey (1934); *vitripennis* Osten Sacken (1882).

Australian. *Damalis fuscipennis* Macquart (1846); *lugens* Walker (1861).

Williston's species *Damalis occidentalis* from Mexico is probably not a true *Damalis;* it may belong to *Bromleyus* E. Hardy. *Damalis divisus* Walker from Brazil also probably belongs elsewhere.

Protodamalis, new subgenus

FIGURE 1661

Type of subgenus: *Protodamalis elongatus*, new species.

Some species of *Damalis* Fabricius have a long, slender, and cylindrical or tubular abdomen and the entire postmetacoxal part of the metasternum membranous, in contrast to the fully chitinized arch present in other species of the genus. The face is convex and often quite convex, with dense, bushy, coarse pile. Hind femur and tibia much elongate and 2 or more times as long as the middle legs and both hind femur and tibia swollen or less clavate apically. Scutellum thick, disc flattened and without impressed rim. Male terminalia closed. Length 11 to 16 mm.

Head: The face is convex, often quite convex with bushy, dense, coarse pile, and the whole surface sometimes coarsely pubescent. Proboscis short, stout, swollen at base, arched to a ventral point at apex and laterally compressed. Vertex wider than front and postvertex and upper occiput strongly flared and excavated. Antenna typical of *Damalis;* style thinned at tip. Second palpal segment short, exceptionally stout and robust.

Thorax: The thorax is short; the mesonotum densely pollinose but only moderately high. Scutellum quite thick, the basal half of disc flat, the surface pollinose and the thick rim bears a few, long, upright, stiffened hairs. Postmetacoxal part of metasternum membranous. Halteres large and long, placed far to the rear of hind coxa.

Legs: The hind legs are exceptionally long and gradually dilated toward the apex of femur and tibia. Hind femur densely appressed, coarsely setate; near the apex on the medial side are a few of these oblique setae, which become spinous and arise from minute tubercles.

Wings: The wings are slender, nearly four times as long as wide. The anterior crossvein is oblique and enters the discal cell at or beyond the apical fourth of this cell. Medial crossvein nearly twice as long as upper anterior intercalary vein. Second branch of the medius and first branch of the cubitus fused for a considerable distance.

Abdomen: The abdomen is long and cylindrical, pollinose with almost no pile. Male terminalia large; hypandrium dorsal, obtuse, hoodlike, turned downward. Epandrium has long, curved arms, which turn upward and is completely divided to the base.

Protodamalis elongatus, new species

Length 16 mm. Male. Head: The head is black in ground color, densely obscured by coarse, appressed, pale, brownish yellow micropubescence on the face, the quite vertical short stump, the cheeks, and on a moderately wide, occipital, ocular margin. On the greater and interior portion of the occiput and the postvertex the pubescence is much thinned and tends to be separated from the occipital border by a bare stripe. Proboscis brownish yellow on the lower half, somewhat more reddish dorsally and at the apex. Ventral, occipital pile yellowish white, the stiff, apical hairs brownish black. Palpus pale yellow, with coarse, bristly yellow hairs; 2 segments present. Pile of occiput, vertex, front, and face brownish yellow, and there are 2 or 3 black hairs mixed in with the facial pile. Pile of face copious, long, coarse or almost bristly, and covering almost the whole face except for a narrow space beneath the antenna. First antennal segment and the basal half of the second segment reddish brown, the apex of the second and the whole of the third segment very dark, reddish sepia. Third segment and the reddish brown style, which is pale brown at the apex, are shining.

Thorax: Mesonotum black in ground color, the humerus and all the upper half of the pleuron brown and slightly reddish. Almost the whole of the thorax, including the scutellum, densely covered with flat, appressed, coarse, brownish yellow micropubescence which becomes pale along the lateral margins of the mesonotum and paler on the lower half of the pleuron. Bristles absent but the coarse, scattered hairs, many of which are rather long on the postmesopleuron, the metapleuron, and the posterior margin of the mesonotum and the scutellar margin, are brownish yellow. In the middle of the mesonotum are 2 or 3 blackish hairs mixed in with the light colored hairs of the dorsocentral rows. Halteres long and quite large and reddish brown.

Legs: The hind femur is about 3½ times as long as the middle femur, gradually and distinctly swollen towards the apex; the long, hind tibia is even more strongly swollen distally, the basitarsus quite swollen and as long as the next 3 segments. Hind legs light, reddish brown, a little more yellowish towards the base of the femur and tibia. The coarse, appressed, setate pile is brownish yellow. Only the apex of the tibia with blackish bristles ventrally. Anterior and middle legs brownish yellow, both of the tibia with a light brown, ventral stripe and each femur with a shining brownish spot on each side of the apex.

Wings: The wings are unusually long and slender, light reddish brown, paler in the middle of the posterior cells. Stalk of anal cell and basal stalk of fourth posterior cell unusually long. The oblique, anterior cross vein enters the discal cell a little beyond the outer fourth and the third vein forks well beyond the end of the discal cell.

Abdomen: The abdomen is brownish black in ground color across the middles of the tergites but densely obscured by fine, brownish ochre pollen or micropubescence. Along the sides of the abdomen the ground color changes to light, reddish brown, the pollen shining and pale brownish yellow. Pile very scanty, minute, appressed, and golden. Terminalia shining yellowish brown, the epandrium is ventral in position, with a long, upturned process on each side.

Type: Male, Willow Grange, Natal. Collected by R. C. Wroughton. Type in the British Museum (Natural History). Paratype male in the collection of the author.

Zygocolon, new subgenus

Type of subgenus: *Zygocolon compactus*, new species.

Flies of less than medium size, with subclavate abdomen and strongly humped mesonotum. Face, antenna, and venation as in *Damalis* Fabricius, except that the alula is more narrow. The proboscis is short and rather stubby at apex, extending perhaps no farther than the face and is directed downward. Lower half of face with numerous, stiff hairs but no bristles.

The postcoxal metasternum is extraordinarily developed, and extends forward as a long, rather flattened, ventral plate that is curved laterally and ends beneath the pronotum; in consequence all the legs are carried forward and the three coxae lie in a nearly vertical column behind the occiput. Hind trochanter considerably elongate and the hind femur gently swollen through the middle and bears on the distal half a lateral row and a medial row of stout, sharp, subtuberculate spines on the ventral surface. Length 10 mm.

Zygocolon compactus, new species

Length 10 mm. Male. Head: The head is quite short, wide and strongly flattened anteriorly. Ground color is black on the vertex and front, thinly covered with reddish sepia pollen, extending down to the transverse, supraantennal groove. The face and cheeks are dark, shining brown, thinly overlaid with appressed, brownish white, micropubescence, which is, perhaps, a little darker on the upper half of the face. The upper two-thirds of face quite flat and below the face retreats posteriorly. Fully the lower half of the face bears numerous, brownish white, moderately long, stiffened hairs but no bristles. Across the middle of the face there is considerable short, whitish pile directed upward. Proboscis blackish, rather bluntly pointed and the quite small, short palpus blackish and composed of 2 segments, with 5 long, slender, brown and yellow bristles at the apex and some stiff, yellowish hairs at the base of the first segment. Antenna brownish black, the minute third segment somewhat more reddish, the second segment pollinose with minute, apical setae, and the first segment with a conspicuous, long, ventral, blackish bristle. The ocelli prominent, set forward and posteriorly, the ocellar tubercle bears a pair of rather long, slender, blackish bristles curving forward. Vertex with some fine, whitish pile and occiput margined with a dense band of conspicuous, brownish white pollen, rather narrow along the eye margins, giving way to very thin, grey pollen or micropubescence over the remainder of the occiput. Just inside the white, lateral border is a row of slender, whitish, bristly hairs, and medially more scattered hairs.

Thorax: Mesonotum black with a faintly shining, brassy lustre and changing to sepia brown laterally, anteriorly, and in front of the scutellum. Pollen or micropubescence of the mesonotum reddish sepia dorsally, changing to greyish white narrowly along the sides and upon a distinct, narrow, transverse, prescutellar band, which lies below the posterior apex of the postalar callosity. The mesonotum has a double, acrostical row of moderately long, slender, black, bristly hairs and dorsocentrally a more conspicuous row of similar, bristly hairs longer posteriorly and changing to white above the scutellum. Scutellum sepia, with thin, white pubescence and on the margin a row of 4 or 5 pairs of slender, black, bristly hairs, the medial pair being longer and more stout. Pleuron reddish sepia, the pubescence with a yellowish tinge, and continued rather densely over the extraordinarily long, postmetasternal, chitinized plate. Halteres large and reddish brown.

Legs: All the legs shining, light yellowish to reddish brown with black, stiff pile and numerous, very slender, long bristly black hairs, and with a scanty band of yellow hairs on the ventral surface of all of the femora. These yellow hairs are longer on the first 4 femora and extend around the anterior and posterior sides. Hind femur with black, sharp spines ventrally on the outer half. Claws reddish on the basal half, black apically. The slender pulvilli are brown.

Wings: The wings are light sepia brown on the anterior half, including the first posterior cell, except the posterior, apical corner of this cell. The anterior half of the first basal cell is more dilutely brown; much of the dark color on the anterior border is due to the very dense, brownish villi. Posterior half of wing nearly hyaline with only a few scattered villi. Alula long and narrow; the ambient vein ends with the fifth posterior cell. Anal cell closed and with a long stalk. Upper anterior intercalary vein a little less than half as long as the medial crossvein.

Abdomen: The abdomen is polished black. Sides of the tergites with some yellowish hairs anteriorly and on the third and remaining tergites replaced posterolaterally by blackish hairs; all of this pile scanty. Dorsally on their posterior half or more the tergites have some scanty, appressed, short, black, bristly pile. Terminalia large, prominent and rotate, shining black with the base of the large, superior forceps and the proctiger reddish brown. The superior forceps are stout, cylindrical, widest in the middle and curved strongly inward toward the medial line and at the apex turned a little downward ventrally. The apex is truncate. Proctiger unusually large, long and tonguelike, its ventral surface bearing a fringe of bristly, reddish hairs. True dorsal surface of the superior forceps with 15 or more prominent, erect, long, yellowish, bristly hairs and apically on the lateral surface 3 or 4 similar, black hairs. Near the base of the hypandrium, which is sulcate with a large, blunt, lateral process and which, perhaps, includes and is fused with the gonopod not otherwise evident, there is a row of 5 or 6 long, conspicuous, moderately stout, black bristles on each side.

Type. Male, from Malaya; in the British Museum (Natural History).

Genus *Orrhodops* Hull

FIGURES 27, 431, 838, 847, 1656, 1657, 1922, 2058

Orrhodops Hull, Rev. Brasileira Biol., vol. 18, no. 3, p. 324, 1958. Type of genus: *Damalis americana* Curran, 1930, by original designation.

Small or medium size flies with wide but comparatively long head, narrow front, divergent face with deep, lateral and ventral creases and with a strong, humpedback appearance. It is related to *Damalis* Fabricius in the type of venation, but the upper anterior, intercalary vein is almost or quite wanting and the third antennal segment is much longer and densely micropubescent or pollinose. The hind femur is densely pilose below and without bristles or spines. Similar to *Haplopogon* Engel in the type of face but it is readily separated by the antenna and the venation. Length 8 mm.

Head, lateral aspect: The head is rather long, especially below, the eye being pointed and narrow dorsally, broadened and convex below. Face not or scarcely visible in profile, strongly retreating below. The width of the head is considerable and the medial eye facets strongly enlarged but the upper occiput and postvertex are only moderately excavated and flared. The ocellar protuberance is high, set sufficiently forward to be visible in profile. The occiput is prominent below, due to the recession of the eye, and rises in elevation medially on the upper portion, its pile long and fine and bristles absent. Proboscis cylindrical, rather short, quite blunt at apex, and not protruding beyond the face. It is directed nearly downward. Palpus large, clearly with 2 segments, the second clavate, not porate, with slender, long bristles at the apex and ventral pile. The antenna is attached at the middle of the head in profile; it is quite short and much shorter than the head. First 2 segments short and subequal, the third conical and nearly as long as the first 2 segments, its outer half pubescent, its base shining with microsetae and bearing at the apex a bristly style nearly as long as all 3 segments.

Head, anterior aspect: The face densely pollinose and also densely covered with long, fine erect pile turned downward about the oral margin. Subepistoma horizontal. The face creases are very deep, conspicuous, flared outward to the eye margin. The front is long, nearly plane with the eye, pollinose and not pilose. Ocellar protuberance moderately high with vertical sides and greatly swollen ocelli and on each side between ocelli several short curved bristly hairs.

Thorax: The thorax is high, strongly arched both anteriorly and posteriorly, with dense, fine, subappressed, undifferentiated hair and also without bristles. The whole mesonotal surface and the whole pleuron pollinose. Scutellum exceptionally thick and convex, with fine, long, erect, bristly pile, the margin without pile or bristles. On the pleuron there is abundant mesopleural, propleural, and metapleural pile and a little on the upper sternopleuron. Metapleuron with extremely weak bristles or bristly hairs; humerus laterally extended beyond the mesonotum. Lateral slopes of the metasternum pilose, ventral metasternum chitinized and with scattered hairs. Postmetacoxal area membranous, but short. Metanotal callosity pollinose only.

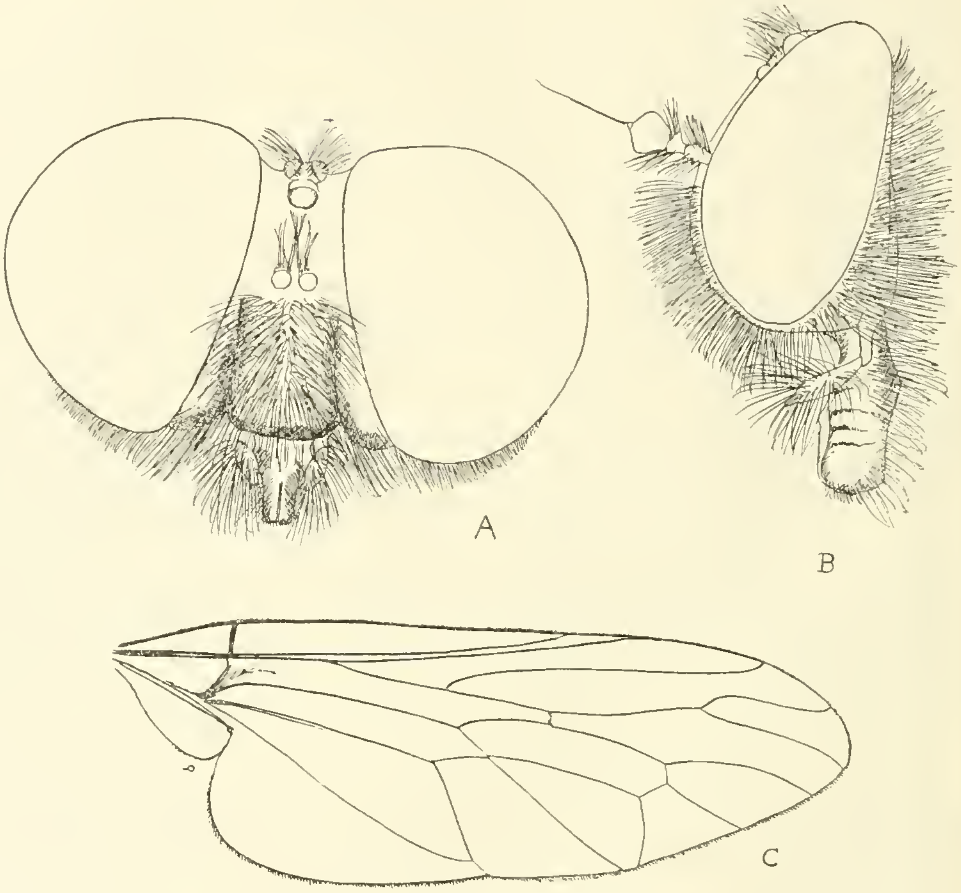
Legs: The femora only moderately stout, never spindleformed or attenuate, the anterior four legs rather weak. All the femora with rather dense, coarse, appressed pile and fine, long, ventral hairs, especially basally. Bristles absent. Tibiae with abundant, subappressed, coarse pile and longer, fine, bristly hairs, especially dorsally, and emphasized and longer posteriorly on the anterior and middle tibiae. The middle tibia has a double posterior and posteroventral fringe of from 15 to 18 elements in each row and fewer elements dorsally and ventrally, 8 to 10 in each row. Tarsi short, the basitarsi of all of the legs with sensory pile. Anterior basitarsus not longer than the 2 succeeding segments, hind basitarsus as long as the next 3 segments. Claws sharp, pulvilli long, empodium strongly swollen at the base.

Wings: The wings are broad at the base, rather pointed apically, the marginal and all the posterior cells widely open, the anal cell closed with a long stalk. The alula is large but not arising from the base vein. The upper end vein of the discal cell is almost eliminated, the middle end vein of the second basal cell completely eliminated, the small crossvein enters the middle of the discal cell.

Abdomen: The abdomen is short, blunt and robust, nearly as wide as the thorax or quite as wide; it is pollinose with rather dense but quite fine erect pile. Bristles absent. Sides of the first tergite not covered by the metasternum. In the males 8 tergites present, 7 well developed, the fourth to the seventh of nearly equal length, the integument soft. Male terminalia large and conspicuous, not rotate, the epandrium long, collarlike, extended backward and with downward curved flaps, its apex truncate.

Distribution: Nearctic: *Orrhodops americanus* Curran (1930).

I have before me an undescribed species from Mexico. Probably *Damalis occidentalis* Williston, from Mexico, belongs here and possibly also *Damalis ?divisus* Walker, from Brazil.



Text-Figure 10.—*Bromleyus flavidorsus* Hardy: A, Head, frontal aspect; B, head, anterior aspect; C, wing.

Genus *Bromleyus* E. Hardy

Bromleyus E. Hardy, Canadian Ent., vol. 76, p. 226, 1944. Type of genus: *Bromleyus flavidorsus* E. Hardy, 1944, by original designation.

Curious flies and perhaps phylogeronts. Robust and about the size of a small bumblebee, with high, strongly arched mesonotum which is very densely covered with long, slightly appressed brownish, brassy pile over its whole surface except for a narrow, bare space above the base of the wing. Scutellum largely covered on the convex disc with similar, long, dense, erect pile. Abdomen drooping and rather short pilose, tending to be bare of pile along the base of the tergites. Wing strongly tinged with brown, uniformly covered with dense villi, the marginal cell widely open, the fourth posterior cell greatly narrowed and the anal cell closed and stalked. The upper anterior intercalary vein is about three-fourths as long as the medial cross vein, the third vein forks beyond the end of the discal cell and the anterior cross vein enters the discal cell barely before the middle. Posterior cross vein wanting. All the femora are stout throughout their length, and all the tibiae and basitarsi conspicuously swollen and robust. Femora and tibiae with dense, conspicuous brushes of pile; these are found on the ventral surface, on the dorsal apices of the femora, and on all sides of the tibiae. The genus belongs to the Damalini and is related to *Orrhodops* Hull, differing in size, pile, venation, character of the legs, and other particulars. Length 18 mm.

Head, lateral aspect: In profile the face does not extend beyond the eye, the entire head is short on the dorsal half, much more extensive below. The eye facets on the entire upper half are remarkably enlarged and there are approximately three divisions, as shown by a faint, oblique crease on the lower part of the eye, the middle division being comparatively narrow, transverse, and attenuate laterally. The occiput is prominent only towards the middle and below, receding laterally towards the eye margin, and rather densely covered with coarse, long hairs, with bristles absent. Proboscis quite short, directed obliquely downward, almost transverse at the broad apex, which is punctate and bears coarse, apical, ventral and lateral hairs. Near the middle it is marked off by a transverse crease, and the base below and laterally bears considerable long pile. Palpus clearly of two segments, with the second segment large, elongate, spindle shaped and bearing numerous, almost spikelike bristles on all sides. Antenna relatively short, the first segment a little longer than the second, the second about as long as high, and the almost subcircular third segment approximately as long as the first but of greater depth or breadth. It bears a long, somewhat thickened arista, or style, which in length is about 1½ times the total length of the three segments. At base of antenna is an extremely small microsegment. First and second segments with a submedial circlet of stiff bristly hairs, which include one or two slender bristles below.

Head, anterior aspect: The antenna is set at the middle of the head, and the face below the antenna is strongly divergent, with the lower half strongly convex as in rhagionids and lower Brachycera with deep, conspicuous, lateral creases. Whole face covered with rather abundant, erect, coarse, bristly hairs which in length equal the first two antennal segments. Front without pile but pollinose above the antenna. Ocellar tubercle large, prominent with vertical sides and with large, protrusive ocelli, the anterior element being especially protrusive and swollen. Middle of ocellar and the posterior border with abundant, moderately long, coarse pile.

Thorax: Mesonotum rather high and arched, together with the convex scutellum and the humerus densely covered with slightly recumbent, pale pile largely concealing the opaque or pollinose ground color. Mesopleuron along the upper and posterior borders widely and densely pilose, the pile long and dark. Pteropleuron without pile but almost the whole of the convex metapleuron with dense, long, conspicuous, dark pile. Metanotum without pile.

Legs: All femora and tibiae and basitarsi, especially the hind basitarsus, exceptionally stout and prominent, and covered with dense fringes of coarse, black, bristly pile. Pile of the tarsi more or less reddish golden, and their ground color brownish orange. The ground color of the femora and tibiae very dark, reddish sepia, but blackish in general due to the black pile. Pulvilli well developed and broad; claws stout, only moderately sharp at the apex, the empodium unusually swollen at the base.

Wings: The wings dark and everywhere villose and rather broad at apex as well as at base. Veins arranged as given above.

Abdomen: The abdomen is quite broad and is drooping, shining, and largely bare along the base of the tergites, with short pile over the middle of the posterior part which becomes dense and longer laterally and of increasing density on the more basal tergites. All posterior margins widely pollinose. Seventh and eighth tergites considerably narrowed, subcylindrical but only a little shorter than the preceding tergites. Ninth tergite shorter, divided medially almost to the base.

Distribution: Nearctic: *Bromleyus flavidorsus E.* Hardy (1944).

Genus *Lasiodamalis* Hermann

Figures 26, 432, 827, 836

Lasiodamalis Hermann, Verh. zool.-bot. Ges. Wien, vol. 74–75, p. 174, 1926. Type of genus: *Damalis capensis* Wiedemann, 1828, by original designation.

Rather small flies with a broad, flattened abdomen at least as wide as the mesonotum and with the mesonotum quite short, no longer than wide. The head is broad but not as wide as in *Holcocephala* Jaennicke. Length 10 mm.

Head lateral aspect: The face is rather protuberant and convex and the antenna is set within a shallow, transverse depression. The proboscis is robust and short, very little longer than the face; it is strongly compressed laterally on a little more than the outer half; the base is rather strongly swollen particularly from a dorsal view. The apex is blunt but a little rounded dorsally and the whole proboscis directed obliquely forward. The palpus is short and robust; the second segment is especially large and cylindrical, very slightly narrowed near the apex which bears several long, slender, bristly hairs. First segment minute and extremely short. The antenna has the first 2 segments very short; second segment with a long, slender, ventroapical bristle. The third segment is considerably more narrow than the second, a little swollen and pyriform at the base and drawn out apically into a long, fine style.

Head, anterior aspect: The face rather strongly protuberant, without transverse grooves. It rises gently beneath the antenna and retreats on the lower fifth; it is densely covered with long, bristly pile which extends ventrally to the eye margins and densely down the upper half of the lateral margins of the subepistoma;

the subepistoma is small, wide, deeply concave, and nearly horizonal. The front is quite short and vertical, wide but flat. The ocellarium is large, wide, low with 3 or 4 pairs of long, slender, bristly hairs all arising immediately behind the ocelli; together with the anterior ocellus the protuberance overhangs the front.

Thorax: The mesonotum is short and is moderately high anteriorly. It bears a row of 5 or 6 very fine, long, erect, bristly acrostical hairs and also scattered, sparse, long, fine, dorsocentral hairs that become longer but remain slender and delicate in front of the scutellum. All bristles are extremely weak and slender; consist of 2 notopleural bristles, no supraalar, but a patch of 10 or 12 fine, black hairs present over the wing and similar hairs on the postalar area. Scutellar margin with 5 pairs of exceptionally fine, quite long, stiff blackish hairs. Metanotum concealed by the slightly arched abdomen and the long, convex scutellum, which bears no discal pile. Metanotal callosity pubescent only. Metapleuron with a wide, vertical band of 12 to 16 quite slender, long, yellow hairs. Upper sternopleuron pubescent only. Postmesopleuron and upper mesopleuron with considerable long, fine pile. Pteropleuron and hypopleuron pubescent only, the latter with long pubescence. The whole length of the lateral metasternum, which is greatly thinned, is long, bristly pilose. Ventral metasternum pubescent and without pile, except perhaps 2 or 3 minute hairs laterally. Postmetacoxal area broad and membranous.

Legs: The hind femur elongate, rather strongly swollen distally, and spindle-shaped and slender basally. Anterior and middle femora stout and moderately swollen. The hind femur densely short, appressed, black setate; many of the lateral setae are yellow. Apex with weak bristles dorsally. Hind femur bears 1 anterior and 2 medial bristles and a weak, medial row of 7 or 8 bristles on the outer half. Hind tibia rather slender, not quite as long as femur; it is gradually thickened and curved near the apex. This tibia is densely short, subappressed setate with short, sharp, oblique, rather stout, spinous bristles numbering 5 dorsal, 8 lateral, and 3 or 4 medial. Apex with still longer bristles, 3 lateral, 2 dorsal, 4 or 5 ventral, and 2 medial. Hind basitarsus very strongly thickened and cylindrical; it is at least as thick if not thicker than the tibial apex. Tibia without any mat of setae. Middle femur rather stout but thickened chiefly through the middle; the ventral margin bears about 7 quite long, stout, slightly curved, black bristles; anterodorsal surface of middle femur with double row of 6 long, slightly curved, oblique, outwardly directed black bristles which begin near the basal third. Middle tibia with very slender, long, black bristles numbering 5 or 6 anterior, 5 or 6 anterodorsal, and 10 posterior in a double row beginning at the basal third. Anterior femur with long, fine, white pile posteriorly and shorter pile ventrally and 4 or 5 quite slender, black bristles posteroapically; the tibia has long bristles consisting of 5 posteroventral and 4 posterior bristles. Apex without spine; claws of moderate length, sharp, strongly curved at the immediate apex; pulvilli nearly as long as claw; empodium long, fine and bristlelike.

Wings: The marginal cell is open widely, fourth posterior cell slightly narrowed. Anal cell closed and petiolate. Alula moderately developed. The ambient vein ends at the end of the anal cell.

Abdomen: The abdomen at the base is not quite as wide as the mesonotum; it is gently tapered and very shallowly convex across the tergites. First tergite about half as long as second. Sides of the first tergite with some long pile and a few, stiff, not bristly hairs. Lateral margins of second and third tergites also with rather long, yellow pile, becoming somewhat shorter and scantier beyond. Dorsal pile abundant but fine and short and appressed. Males with 7 tergites, the seventh fully three-fourths as long as the sixth. Females with 8 tergites, the eighth being half as long as the seventh. Male terminalia conspicuous and half rotate. The superior forceps have a pair of long, slender processes which turn at right angles and extend obliquely upward and are met by divergent, ventral processes. Female terminalia minute, barely protruding beyond the eighth tergite.

Distribution: Ethiopian: *Lasiodamalis capensis* Wiedemann (1828); *heterocerus* Wiedemann (1821) [=*anomalus* Wiedemann (1821)].

Wiedemann (1828) lists as synonyms of *Damalis capensis* the two species *Dasypogon anomalus* Wiedemann (1821) and *Dioctria heterocera* Wiedemann (1821). Hermann (1926) designates *Damalis capensis* as type of genus of *Lasiodamalis* Hermann. If Wiedemann was correct, one of these last two names must take precedence over *Lasiodamalis capensis* Wiedemann. Kertész (1909) placed *Lasiodamalis capensis* Wiedemann as synonym of *Lasiodamalis heterocerus* Wiedemann. Without having studied types of both species, I cannot change Hermann's allocation.

Genus *Lophurodamalis* Hermann

Figures 25, 409, 824, 833

Lophurodamalis Hermann, Verh. zool.-bot. Ges. Wien, vols. 74-75, p. 188, 1926. Type of genus: *Damalis hirtiventris* Macquart, 1846, by original designation.

Flies with broad wings, sometimes robust abdomen, exceptionally high arched mesonotum and minute third antennal segment with long style. The midtibia has a terminal stubby process or protuberance; the middle tarsal segments may also have ventral processes. Length 1 to 15 mm.

Head, lateral aspect: The head is short and high, the occiput is nowhere prominent, but is a little better developed ventrally because of the gradual recession of the eye. The face is only moderately produced beyond the eye, gently rounded and still shorter beneath the antenna. Pile of the occiput fine and scanty, changing to slender bristles along the middle of the eye, the upper elements scarcely thicker than those below. The proboscis is comparatively high, somewhat compressed laterally, produced only a little beyond the face and with a low dorsal keel; the lower surface, except at the base, is plane, and dorsally the apex is strongly arched; the apex bears numerous, stiff, bristly hairs, the basal ventral portion has a few long, fine hairs. Palpus of two segments, but the basal segment minute, hidden behind the leaf-thin posterior plate of the head, and the long cylindrical second segment is bent forward beneath the edge of the plate at a right angle; it bears numerous fine hairs and 2 or 3 slender bristles at the apex. The antenna is attached a little above the middle of the head; the first segment is quite short, the second short and beadlike. On the first is a long bristle and some fine hairs; second with only fine setae; third segment minute, smaller and more narrow than the second segment, with a long fine style three times the combined length of all segments.

Head, anterior aspect: The head is very wide, the eyes greatly flattened, the mediocentral facets greatly enlarged. The face below the antenna approximately one-fifth the head width and divergent below with deep creases between cheek and eye. The face is coarsely pubescent and bears 2 groups of very slender, numerous bristles or bristly hairs; the upper group begins near the bottom of the face and broadly covers the middle of the face, its elements curved upwards. The lower group occupies the ventral, retreating third of the face, its elements are longer and curved downward, but not stouter. The front and vertex are slightly widened; anteriorly the front is sunken so that the antenna is set in a transverse depression. The whole front is vertical, pubescent, without pile. The ocellarium is large but low with large ocelli, the whole structure is visible in profile, facing anteriorly and has two slender bristles behind the ocelli and considerable stiff pile along the transverse posterior margin of the vertex. Laterally the eyes rise considerably above the vertex and from a dorsal aspect the vertex is excavated and flared outward.

Thorax: The mesonotum is quite high, almost as high as long, and strongly arched both anteriorly and posteriorly. It is coarsely pubescent laterally and anteriorly but with large medial and submedial bare stripes. The pile is scanty, fine, and suberect. The acrostical bristles are well developed and isolated anteriorly. The dorsocentral bristles are isolated only near the middle of the mesonotum, but well before the transverse suture, which is strongly oblique. Generally there is a large patch of long pile above the scutellum. Humerus pubescent only. There are no differentiated bristles laterally on the mesonotum. The very thick, convex scutellum has a row of long, stiff hairs on the margin, and the surface is densely, coarsely pubescent. Propleuron with scattered, long hairs which are rather abundant. Whole of the mesopleuron, upper sternopleuron, and posterior hypopleuron with numerous, long, fine hairs. Metapleuron has a large, circular patch of numerous, stiff, long hairs covering nearly the whole of its surface. Metasternum pilose, postmetacoxal area membranous, the prosternum fused laterally and ventrally. The whole surface of the pleuron coarsely micropubescent.

Legs: All the femora are stout, a little swollen, the hind pair rather strongly swollen on the distal half and attenuate basally. The tibiae are stout and become more stout and swollen distally. Hind legs considerably longer than the others. Pile of the legs greatly reduced basally on tibiae and femora, becoming somewhat more abundant, fine, setate and appressed distally. Bristles for the most part are weak, long, slender, and sharp. The hind trochanters bear ventrally at apex a cluster of 12 to 15 bristles. The hind femur has 5 sharp, tuberculated, spinous bristles ventrolaterally, 2 others ventromedially, all of them on the distal half; its tibia without bristles except at the apex. Middle femur with a ventral double row of 12 to 14 long, slender bristles, a few of these elements being stout, its tibia with 5 posterior and 5 posteroventral bristles, all of them long and conspicuous and with an anterior, anteroventral and ventral fringe of long hairs. Apex of this tibia with a conspicuous, stubby, ventral process carrying short, spinous bristles, its basitarsus reduced in thickness, the next three segments with oblique, rather sharply pointed ventral protuberances. Anterior femur and tibia with only fringes of numerous long, bristly hairs and the apices of this tibia unmodified. The anterior basitarsus, however, has posteriorly a row of rather conspicuous dense bristles throughout its length, but most numerous basally, and mixed with long hair. Claws small but sharp, the pulvilli and empodia well developed.

Wings: The wings are broad, tinged darkly with brown; all cells are widely open, except the anal cell, which is closed with a long stalk. Second basal cell ends in 2 veins. Alula nearly 4 times as long as wide, the ambient vein ends at the anal cell. The anterior crossvein enters the discal cell at the outer third.

Abdomen: The abdomen is robust, but comparatively long, at the base not quite as wide as the mesonotum; the pile is very dense everywhere but short and plushlike dorsally, increasing in length so that the sides of the tergites are conspicuously fringed with long, coarse hairs. Bristles absent on all segments. Males with 7 tergites only. Male terminalia fully rotate, the epandrium broadly and deeply but not completely cleft; there is a considerable fused, basal portion and the lateral arms are large, obtuse, massive, long, and conspicuous. The proctiger is small and flat. The hypandrium is short, broad, with a slender lateral process. The large arms of the epandrium and the dorsal extension of the hypandrium tend to enclose what appears to be a thin, flat lamina, which we believe constitutes the gonopod.

Distribution: Ethiopian: *Lophurodamalis fervida* Walker (1856); *hirtiventris* Macquart (1846) [=*imbutus* Walker (1854)]; *natalensis* Curran (1934); *simplex* Curran (1934); *speciosa* Loew (1857).

Genus *Aireina* Frey

FIGURES 15, 415, 828, 837, 1578, 1662

Aireina Frey, Rev. suisse Zool. vol. 41, p. 311, 1934. Type of genus: *Aireina paradoxa* Frey, 1934, by original designation.

Species with the typical appearance of *Damalis* Fabricius, but with somewhat different wing and especially characterized by the grotesque anterodorsal development of the mesonotum. There is a conspicuous vertical postocellar prominence and dorsal lateral flanges on the occiput, besides the attenuation and diminution of all of the segments of the middle tarsi. Length 15 mm., wing 15 mm.

Head, lateral aspect: In profile the face is only slightly visible, the antenna is set in a deep transverse depression, the middle of the face is flattened; it is everywhere pubescent and without pile, except for a few fine, short, scattered hairs. Along the epistomal margin the mystax consists of four long, moderately stout bristles set in two pairs along each side. Proboscis rather wide and subcylindrical at the base, but comparatively short, tapering to an obtuse point below, with a thin medial blade above. The upper margin of the proboscis is strongly arched, the apex pilose, the middle of the ventral margin with a pair of long bristles, the direction straight downward. The palpus is small, cylindrical, the basal segment quite short, the apex with numerous long bristles.

Head, anterior aspect: The face is only one-fifth the total width of the head yet appears to be comparatively wide because the head is quite wide and very short, with the eyes strongly flattened anteriorly and the central facets greatly enlarged. Ocelli large, set anteriorly on the anterior vertex; above and behind the ocelli is a large, conspicuous, dorsal prominence wider than high and set off from the vertex by a deep constriction. The occiput has moderately long, rather fine pile, and on each side sublaterally on the upper portion, the occiput is developed into a conspicuous, shining, flangelike projection, narrow but with rounded edge, which is produced upward and backward. Antenna with the first segment extremely short; the second segment is scarcely longer but subglobular; the third is reduced to a minute globule followed by a very long, slender, setate style, as is characteristic of *Damalis* Fabricius.

Thorax: The anterior portion of the mesonotum, as well as the whole middle portion, is raised into an enormous, swollen body fully as high or as long vertically as the remaining portion of the thorax below it. Anteriorly the mesonotum is directed forward and overhangs the occiput and forms a structure with 4 small lobes, each directed anteriorly and surrounding a fifth central lobe. The dorsal pair of lobes are divergent and proceed backward to form a wide, medial ridge. The mesonotum beyond its middle falls away sharply in a deep, convex arch to the scutellum. Scutellum convex with an impressed rim, and has discal pubescence and scattered, appressed pile; margin without pile, pubescence, or bristles. Anteriorly on each side of the anterodorsal projection there is an oblique band of dense, curled pile. Posterior margin of humerus with 4 or 5 short, stout bristles. Behind this band of pile is a deep, vertical recess. There are no conspicuous bristles in the notopleural region or above the wing, but there is a patch of stiff setae anteriorly on the postalar area. The medial dorsal portion of the mesonotal prominence is bare, but has pile laterally. Mesopleuron with a few, minute hairs; hypopleuron with long and short pubescence; metapleuron with a broad patch of long, slender pile; slopes of the metanotum without pile.

Legs: The hind femur stout, with 5 tuberculate, stout, spinous bristles below. The hind tibia is moderately stout, arched inward towards the apex and with only fine, bristly pile. Middle femur shorter but stouter than the hind femur, below with long, fine bristly hair which is continued upon its tibia; middle tibia with a dorsal preapical callosity bearing 4 or 5 close-set, stout, black spinous bristles. Middle tarsi greatly thinned and diminished in size but the length approximately normal. Anterior femur with fine, bristly pile below, continued on to the tibia.

Wings: The ambient vein extends to the end of the anal vein.

Abdomen: The abdomen is flattened and only gently convex, a little wider than the scutellum on the basal segment, becoming nearly twice as wide as the scutellum at the end of the second segment. Beyond the second segment the remaining segments are drooping and turned downward; the pile is abundant and extremely short, but longer on the lateral margins and everywhere fine and not bristly. Male terminalia short and inconspicuous with a single unpaired process medially and below, on each side of which are two stout bristles.

Distribution: Oriental: *Aireina paradoxa* Frey (1934), from IndoMalayan subregion.

Genus *Discodamalis* Karsch

Discodamalis Karsch, Berliner Ent. Zeitschr., vol. 31, p. 373, 1887. Type of genus: *Discodamalis debilis* Karsch, 1887, by original designation.

The following is Karsch's description in translation:

> Uniformly black, with only the base of all tibiae yellow and the yellow color extends beyond the middle. Mystax whitish and all the bristles whitish. Eye facets not uniform. Wings moderately small and of a dull gray color. At the wing margin (Der Mundung) the third posterior cell is widened and the fourth posterior cell is narrowed. Crossvein quite at the middle of the discal cell. Body length 7 mm. Note: Since these species show the wing venation of the genus *Damalis*, with the longitudinal vein of the fourth posterior cell arising immediately from the discal cell, and also have the antennae constructed as in *Discocephala*,[2] I have selected for them the name *Discodamalis*, and submit the following chief characters: Head quite thick, transverse, low; ocellar tubercle low; proboscis straight; antennal style shorter than the third anten-

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[2] *Discocephala* is equivalent to *Holcocephala* Jaennicke of present day usage.

nal segment. Wings not broad, the fourth posterior cell terminating behind in a single longitudinal vein arising from the discal cell.

Distribution: Ethiopian: *Discodamalis debilis* Karsch (1887).

Genus *Icariomima* Enderlein

Icariomima Enderlein, Wiener Ent. Zeitung, vol. 33, p. 163, 1914. Type of genus: *Icariomima coeruleiventris* Enderlein, 1914, by original designation.

The following is Enderlein's description in translation:

> Distinguished from *Damalis* Fabricius, 1805 by the following: Abdomen very long and slender and the second segment very strongly narrowed and prolonged (here about twice as long as broad). In consequence the species has the appearance of a wasp of the relationship of the wasp genus *Icaria* Saussure. Antenna as in *Damalis*. Third antennal segment very small with a strong, terminal bristle which is four to five times as long as the segment itself; likewise the posterior branch of the sixth vein ends in the anal vein and the anterior branch of the third vein is fused for a short distance with the posterior branch of the fourth vein (discoidal cell).

Distribution: Ethiopian: *Icariomima coeruleiventris* Enderlein (1914).

Apparently based chiefly on the petiolate abdomen; in *Damalis* in the wide sense, the abdomen is often elongate; the wing venation does not appear to be unique, as in *Damalis*, the posterior crossvein is often eliminated with consequent fusion of adjacent veins. *Damalis* Fabricius represents a very plastic group of flies of highly variable form.

Genus *Holcocephala* Jaennicke

FIGURES 44, 55, 412, 839, 848, 1639, 1641, 2011, 2041, 2056

Discocephala Macquart, Diptères exotiques, vol. 1, pt. 2, p. 50, 1838. Type of genus: *Dasypogon abdominalis* Say, 1823, as *Discocephala rufiventris* Macquart, 1838. Designated by Coquillett (1910). Preoccupied by Hemiptera, 1832.

Holcocephala Jaennicke, Abhandl. Senckenberg. Naturf. Ges., vol. 6, p. 359, 1867. Change of name. Hermann (1926) overlooking Coquillett's prior (1910) designation, named *Dasypogon rufithorax* Wiedemann, 1828, as type of genus.

Helcocephala Loew, Berliner Ent. Zeitschr., vol. 18, p. 377, 1874, *lapsus*.

Holocephala Williston, Trans. Amer. Ent. Soc. vol. 18, p. 72, 1891, *lapsus*.

Holcocephala has 1 subgenus, *Arthriticopus* Enderlein.

Small, broad-winged, soft-bodied and weak-flying species readily recognized by the wide, flattened head, prominent eyes, and reduced face and vertex that give it a goggle-eyed appearance. In addition, the mesonotum is high and especially prominent anteriorly and bristles are greatly reduced and pile almost restricted to dense pubescence, so that the flies have a rather bare appearance. *Holcocephala* Jaennicke has a 1-segmented antennal style, with straight, apical bristle, a closed anal cell with generally a quite long stalk or petiole and the postmetacoxal metasternum is membranous in contrast to *Damalis* Fabricius. There is a characteristic, shallow, transverse groove lying a short distance above the epistomal margin, which is absent in such Old World genera as *Damalina* Doleschall and *Rhipidocephala* Hermann. Length 4 to 8 mm.

Head, lateral aspect: The head unusually short but exceptionally broad. The face in profile is very short, scarcely visible, the eye equally prominent above and below. The medial facets are exceptionally enlarged. The occiput is strongly excavated and flared dorsally and in profile is scarcely visible either above or below; the occiput is densely pollinose with scattered, fine, coarse, bristly hairs. Proboscis quite short and robust, bluntly pointed and directed obliquely downward; it has coarse bristly pile ventrally at the apex and similar hairs at the base. Palpus elongate but exceptionally slender, cylindroid with stiff apical bristles, and the basal segment minute and short. Antenna attached a little above the middle of the head, about as long as the head or a little shorter; the first two segments quite short and subequal, the third segment elongate, slender, attenuate at the base and slightly at the apex, and bearing a rather long, conical microsegment with apical spine.

Head, anterior aspect: The face densely micropubescent with a few, fine, scattered hairs. The epistomal margin is differentiated from the equally densely pubescent subepistomal area by a crease and bears two or three pairs of fine, long, bristly hairs. The front is almost eliminated, so close to the antenna is the ocellar protuberance. It is pubescent, not pilose, the ocellar protuberance large, conspicuous, set well forward and all the ocelli enlarged.

Thorax: The thorax is characterized by a high, prominent mesonotum, steeply arched posteriorly and anteriorly, densely micropubescent and pollinose with very little pile and no bristles. There is a double acrostical row and an incomplete dorsocentral row of short, fine hairs. Scutellum thick and convex, pollinose, with a few scattered discal hairs. Pleuron uniformly pollinose and micropubescent with a tuft of scattered pile dorsally and posteriorly on the mesopleuron and long, fine hairs on the metapleuron and the whole of the propleuron. Metanotal callosity bare. Lateral metasternal slopes pilose posteriorly; they almost completely overlap and conceal the lateral margins of the first tergite. Postmetacoxal area membranous.

Legs: The hind femur to a slight extent and the hind tibia to a marked extent tend to be dilated towards the apex, with the corresponding basitarsus swollen. The pile of the hind femur is appressed and setate, with a row of long, slender, erect, ventral bristles which tend to be confined to the basal half; hind tibia with a brush of coarse, bristly, suberect pile on lateral, medial and ventral surfaces; it has a long, slender, subapical, dorsolateral bristle and similar dorsomedial bristle, besides 2 or 3 similar distal ventral bristles. Posterior basitarsus with a dense, erect brush of sensory pile. Anterior and middle legs weak, their femora short and stout, their tarsi and tibiae also short. Both these femora bear some slender, ventral bristles towards the base. The middle tibia has better developed bristles, all of which are long and slender, as follows: 4 posterior, 4 or 5 posteroventral, 4 or 5 anteroventral, and 2 or 3 anterior. Claws fine and sharp; pulvilli well developed; the empodium slender and short.

Wings: The wings are exceptionally broad in the majority of species, occasionally slender, as in *Holcocephala calva.* The marginal and all of the posterior cells are widely open, the anal cell closed and with a long or short stalk. Middle end vein of the second basal cell exceptionally long. Alula moderately developed; ambient vein complete. Typically, the wings in most species are strongly tinged with brown, particularly towards the base.

Abdomen: The abdomen is short and comparatively broad, sometimes pedicellate; the surface of the tergites is quite soft, so that it often presents on drying a wrinkled appearance. Seven tergites are present and well developed in the male; the second tergite nearly as long as the last four and each tergite becomes progressively shorter, so that the apex of the abdomen is considerably narrowed except in petiolate species like *Holcocephala calva.* Females with 8 well developed tergites. Abdomen densely pollinose with very scanty, short, inconspicuous pile along the sides. Sides of the first tergite with a few bristly hairs. Male terminalia large, conspicuous, not rotate, and open below. The aedeagus is long, conspicuous, arched and trifid at the apex; it is often carried ventrally at some distance below the remainder of the terminalia. The proctiger is unusually large and tubular or hemicylindroid. The epandrium is short, broad, with a deep but wide triangular cleft which does not reach to the base; this structure is finely micropubescent or pollinose as are the preceding tergites and it has a small, narrow, lateral part which may be turned downward. The gonopod is elongate, polished, apt to be pointed apically and tends to enclose the lower edge of the proctiger. The hypandrium is of moderate length, pollinose on the basal half, polished distally, and emits on each side dorsally, near the base of the gonopod, a long, slender prong, which seems to arise from beneath the edge of the hypandrium; this prong possibly represents the same structure which in the Asilinae we have designated as the clasper. The aedeagus arises between these prongs. Female terminalia small, inconspicuous, without apical spines.

These quaint, little flies, the gnat-ogres, are frequently abundant in swampy areas where they are found on the tips of twigs and leaves among rank undergrowth.

Distribution: Nearctic: *Holcocephala abdominalis* Say (1823) [=*acta* Walker (1849), *laticeps* Wulp (1869), *rufiventris* Macquart (1838)]; *amastris* Walker (1849); *calva* Loew (1872); *fusca* Bromley (1951).

Neotropical: *Holcocephala affinis* Bellardi (1861); *alboatra* Walker (1851); *apicalis* Walker (1854); *?coriacea* Wiedemann (1821); *deltoidea* Bellardi (1861); *dimidiata* Hermann (1926); *divisa* Walker (1860) [=*longipennis* Bellardi (1861)]; *femorata* Hermann (1926); *fimbriata* Hermann (1926); *inornata* Rondani (1848); *luteipes* Hermann (1926); *macula* Rondani (1848); *mogiana* Carrera (1955); *nitida* Wiedemann (1830) [=*interlineata* Walker (1860)]; *nodosipes* Enderlein (1914); *obscuripennis* Enderlein (1914); *oculata* Fabricius (1805) [=*agalla* Walker (1849), *minuta* Bellardi (1861)]; *pardalina* Hermann (1926); *pectinata* Carrera (1955); *pennipes* Hermann (1926); *peruviana* Hermann (1926); *rufithorax* Wiedemann (1828); *scopifer* Schiner (1868); *spinipes* Hermann (1926); *stylata* Pritchard (1938); *uruguayensis* Lynch Arribálzaga (1882).

Ethiopian: *Holcocephala lambertoni* Bromley (1942); *semitestacea* Loew (1863); *tibialis* Macquart (1846); *umbripennis* Loew (1857).

Oriental: *Holcocephala concolor* Walker (1861); *dorsalis* Walker (1856); *hirsuta* Wulp (1872); *pandens* Walker (1860); *prytanis* Walker (1849).

Subgenus *Arthriticopus* Enderlein

Arthriticopus Enderlein, Wiener Ent. Zeitung, vol. 33, p. 161, 1914. Type of subgenus: *Arthriticopus nodosipes* Enderlein, 1914, by original designation.

This fly does not differ from *Holcocephala* Jaennicke in any respect except the exaggerated hind tibia and basitarsus. It will be easily recognized by the abrupt, distal swelling of this tibia and the equally swollen first tarsal segment. Length 10 mm.

Only two species fall in this subgenus. These are *Arthriticopus nodosipes* from Colombia and *Arthriticopus scopifer* from Brazil. They may very well prove to be the same species, as has been suggested by Pritchard (1938).

Genus *Rhipidocephala* Hermann

FIGURES 20, 37, 428, 843, 852

Rhipidocephala Hermann, Verh. zool-bot. Ges. Wien, vols. 74–75, p. 174, 1926. Type of genus: *Discocephala analis* Macquart, 1846, by original designation.

Quite small flies characterized by the high, dense, long pilose mesonotum, the drooping abdomen, broad wings and the reduced length of the third to seventh tergites. The anal cell is widely open. These flies are related to *Holcocephala* Jaennicke but are distinguished by the differently shaped antenna and long pubescent or short plumose microsegment upon the antenna, the much narrower head, the long mesonotal pile, and the open anal cell. The vertex is only slightly or not at all divergent. Length 5 to 7 mm.

Head, lateral aspect: The face is scarcely visible in profile. The eyes are strongly convex anteriorly, gently convex posteriorly, without ventral recession. The occiput is thick and well developed but obliterated at the immediate vertex and also reduced near the bottom of the eye. The pile of the occiput is composed of 1 or 2 rows of stiff hairs on the upper half and abundant, long, fine, somewhat curled hair below; bristles absent. The proboscis is quite small and unusually short, directed obliquely forward, subcylindrical, with a blunt apex which bears considerable rather long pile ventrally and shorter stiff pile at the tip; its base has a few long hairs. Palpus of 2 segments; the first segment short, fused at the base, its junction with the longer, second, somewhat distally swollen segment not immediately apparent. Second segment apparently with a small pore apically and several long, stiff, bristly hairs ventrally and near the apex. The antenna is attached at the middle of the head and is of moderate length; the first two segments are short and subequal in length, the second beadlike, or subglobular, the third rather slender and more than twice as long as the first two segments combined. The second segment is pubescent and bears a long, pubescent, microsegment nearly half as long as the third segment itself; at its apex it carries a minute spine. First and second segments with 4 to 6 rather long setae dorsally near apex and 3 or 4 longer setae ventrally near the middle.

Head, anterior aspect: The head is about twice as wide as high. Face one-fourth of the head with nearly parallel sides but rather short in length; the eyes are ventrally extended considerably below the face and epistoma. Subepistoma small and inconspicuous and nearly horizontal. Face pubescent at least laterally and above, sometimes with bare spot in the middle. The pile consists of 5 or 6 long hairs on either side, beginning just above the middle of the face and sometimes with weak slender bristly hairs along the supepistomal margin. Front of moderate length, pubescent, without pile or bristles, very slightly divergent; the vertex is of the same width as the upper front and is only moderately excavated. Ocellarium large and rather high, bearing 2 or 3 pairs of long, slender bristles or stiff hair; the anterior ocellus swollen. Eye facets greatly enlarged centrally and zoned.

Thorax: Mesonotum, together with the pleuron, micropubescent; the mesonotal length is two times its height. Pile of mesonotum abundant and rather long and fine and suberect. There are no differentiated acrostical or dorsocentral bristles. Humerus pilose. Lateral bristles absent. Scutellar bristles absent, the scutellum relatively thin, convex; its rim is smooth and pubescent with a number of long, erect hairs on the disc. Propleuron with fine pile. Mesopleuron long pilose dorsally and posteriorly. Pteropleuron and hypopleuron without pile. The metapleuron has 7 or 8 quite slender bristles or bristly hairs. Metanotal slopes micropubescent only. Metasternal slopes with long pile, the metasternum bare, the postmetacoxal area membranous. Prosternum not dissociated.

Legs: The middle and anterior femora moderately stout, the hind femur slightly stout and with a slight dilation apically. The legs are characterized by dense, short, appressed setate pile and quite weak bristles which in places are scarcely more than stiffened hairs. Hind femur ventrally with several, long, stiff hairs; its tibia with the following bristles: 2 lateral, 2 ventrolateral, 2 or 3 ventral, and 4 short medial on the basal half, besides 7 or 8 quite short dorsal bristles; the subapex has 2 dorsal, 2 lateral, 3 or 4 ventral bristles; its medial surface has only suberect setate pile. The hind basitarsus bears a very dense brush of erect pile bearing glandular apices. Middle femur with 4 or 5 slender bristly hairs ventrally; its tibia has 4 short dorsal bristles and 3 anterior, of which the middle and outer member are much longer and stouter, 4 weak slender anteroventral, 3 or 4 similar ventral, and 4 to 5 slender posterior. Anterior femur with 2 or 3 long, slender hairs ventrally at the base; its tibia has 5 or 6 quite short, weak bristles dorsally, a double row posteriorly of longer slender bristles; apex with weak bristles and no spine. The tarsi end in long pulvilli, sharp claws and slightly reduced empodium.

Wings: The wings are broad, the length only 2½ times the width, often tinged with brown. The marginal cell is widely open; the anterior branch of the third vein ends nearly at wing apex. All posterior cells are widely open; anal cell widely open; the second basal cell ends in 3 veins, the middle vein long. The alula is rather narrow; ambient vein complete; marginal fringe unusually long.

Abdomen: The abdomen is relatively short, much shorter than the wings; it is comparatively broad and robust, especially on the basal half where the tergites are slightly flattened. First tergite not swollen laterally, membranous across the middle; the second tergite 3 or 4 times as long as the first and nearly as long as the succeeding four. All of tergites 3 to 7 of nearly equal length; 7 tergites only are present in the male. The pile of the abdomen is scanty, short, fine and subappressed but with considerable longer pile laterally on the sides of the second and third tergites, gradually becoming shorter beyond. Sides of first tergite with a few long, weak hairs. Bristles are absent. Male terminalia quite large, and together with the terminal, abdominal segments more or less cylindrical. It is as long or longer than the last 3 tergites. The epandrium constitutes the largest and the dominant structure in the male; it is directed to its base but forms a very thin, shell-like, laterally curved or convex, downwardly directed envelope composing half or more than half of the structure from a dorsoventral aspect; it bears two long, blunt, equally thin, posterior lobes. Gonopod small, short, thin, with a shorter posterior lobe. Hypandrium broad and short. Genital cavity open. In the female the ninth and tenth segments are very small, without spines.

Distribution: Neotropical: *Rhipidocephala analis* Macquart (1846).

Ethiopian: *Rhipidocephala caffra* Macquart (1846); *caligata* Speiser (1910); *flavipes* Hermann (1926); *morio* Hermann (1926); *punctulata* Wulp (1899); *quadrifaria* Hermann (1926); *signata* Hermann (1907); *thoracica* Engel (1946).

Genus *Margaritola* Hull

Figures 16, 418, 865, 874, 2249

Margaritola Hull, Proc. Ent. Soc. Washington, vol. 60, p. 255, 1958. Type of genus: *Margaritola mirabilis* Hull, 1958, by original designation.

Peculiar flies, small and robust with short, rather high thorax, quite wide head with prominent, goggle-eyed appearance. It has exceptionally broad, generalized wings and a very long antenna composed chiefly of the microplumose microsegments, which are longer than the third segment itself. Length 6 mm. without antenna.

Head, lateral aspect: The head is of medium length, in profile the upper face is quite short, almost plane with the eye and strongly retreating below. Occiput poorly developed in profile but slightly more prominent ventrally and from the ventral aspect the lower eye corners are strongly rounded off, exposing a considerable amount of occiput with dense, erect micropubescence and deep facial grooves. The proboscis is exceptionally small and short, robust but obtuse, a little compressed laterally and with considerable, fine, apical pile not extended as far as the face. Palpus large, elongate, and cylindrical, with a small, short, bulbous, basal segment; the second segment has numerous, slender, basal, lateral and apical, bristly hairs. Antenna attached at the upper third of the head in profile, but actually rather close to the vertex. The antenna is unusually elongate, nearly twice as long as the head; it is comparatively slender and of uniform thickness. The first two segments are each quite short, subequal, and beadlike, with fine, short bristles below and above on the second segment, but with setae at the top of the first segment. The third segment, if microsegments are included, is at least five times the combined length of the first two segments. The third segment proper is not as long as the two microsegments but nearly as long as the second and ultimate microsegment. The first microsegment is short, its junction with the apical microsegment is not very clearly delimited. Both of them bear, together with the last half of the third segment, very dense, long micropubescence or microplumose pile.

Head, anterior aspect: The head is quite wide, at least twice as wide as high or a little wider, and due to the expansion of the eyes below and above it presents a somewhat goggle-eyed appearance. Face below antenna about one-fourth the head width, very slightly wider below, the upper third bears not very dense, coarse, appressed pubescence. The remainder is polished and bare, except for similar, sparse pubescence bordering the subepistoma which is small and nearly horizontal. Upper face with no pile; middle face with 2 or 3 long, slender, bristly hairs or weak bristles. Lower, retreating face with 3 or 4 similar hairs on each side. Front extremely short, wide, mostly bare, slightly wider than the upper face; it has no pile but ocular pubescence is present. Vertex a little widened, scarcely excavated though the eye rises above the vertex. The ocellarium is quite large and rather high, with vertical sides; it has a large anterior ocellus and 3 short, weak, pale bristles on each side between the ocelli and a minute hair behind.

Thorax: The thorax is short and rather high; the mesonotum is moderately high and convex, abrupt anteriorly, densely covered with coarse, undifferentiated, suberect pile of uniform length over the whole. The surface on the posterior middle portion is granulate. Lateral bristles are absent. Metanotum low but the convex, micropubescent scutellum has a few, scattered, short, discal hairs and no marginal pile except micropubescence; it slopes downward considerably. Pronotum with fine hairs; mesonotum with a few very fine, short hairs. Metapleuron with a vertical band of long, fine hairs. Whole pleuron pollinose; postmetacoxal area membranous; lateral metasternum with pile; prosternum fused laterally.

Legs: The legs are short, especially the femora. The first 4 are distinctly stout, the hind femur is only moderately stout and slightly longer. Hind femur densely covered with rather long, fine appressed pile; and weak, slender bristles or bristly hairs are present in small numbers. Hind femur with very weak, ventrolateral bristles and with 4 much longer, ventromedial, equally slender bristles. Hind tibia with 2 lateral bristles at the middle, and beyond and in nearly the same position 2 ventrolateral bristles and 1 other basal, shorter bristle; also there are 2 ventromedial bristles and 2 others, erect instead of directed forward, near the apex. Ventrally the apex of the tibia has 4 or 5 weak, straight bristles. Hind basitarsus with dense, erect, glandular-tipped pile. Middle femur with 4 or 5 long, slender hairs ventrally. Tibia with a few weak bristles similar to the hind tibia. There are 2 anterior elements at the middle and beyond, 4 shorter ventral bristles, 5 short, posterior bristles and 3 quite long, more stout, also pale, posteroventral bristles. Anterior femur with a single long, slender bristle at the base ventrally; the tibia is quite slender and bears 3 or 4 fine, short, posterodorsal bristles, 4 longer, slightly stouter, posteroventral bristles, and 3 or 4 short, weak, anterodorsal bristles. Apex of anterior tibia without spine, the distal circlet of bristles is subapical. Claws small, straight, sharp and hooked at the immediate apex; pulvillus well developed; the empodium short and somewhat swollen at the base.

Wings: The wings are exceptionally broad, little more than twice as long as wide; marginal cell quite widely open; the auxillary vein and the first vein and the costa are all much stouter than the remaining veins, although the cubitus is also stout. The two branches of the third vein end almost an equal distance above and below the wing apex. The second submarginal cell is rather narrow, at base widened entirely in front of the third vein; fork of third vein a little beyond the end of the discal cell. All posterior cells open maximally; medial crossvein and upper intercalary vein of equal length; posterior crossvein long, discal cell short and broad, the short anterior crossvein enters the middle of the discal cell. Anal cell very widely open; alula narrow and ambient vein complete. Wing tinged with brown and wholly villose.

Abdomen: The abdomen is comparatively wide, the base is perhaps not quite as wide as the mesonotum; the third tergite is as wide as the mesonotum. The first abdominal segment is quite short, and membranous, except narrowly along the sides where there is a strip of chitin. Beyond the third tergite the abdomen is slightly narrowed and ends obtusely. The surface is gently convex, almost flattened in the middle. There is a prominent, transverse crease just before the middle of the second segment, deceptively appearing as the margin of the segment; and there are more shallow constrictions subbasally on the third, fourth, and fifth segments and the posterior margins of the second and third bear minute, fluted impressions. Males with 7 tergites, the seventh half as long as the sixth, the third little more than half as long as the second. The eighth is totally concealed beneath the seventh. Male terminalia recessive and the basally, at least partially split epandrium is largely tucked beneath the last tergite and not apparent from above. The tiny proctiger is enclosed within the V-shaped cleft. I cannot determine if the medial cleft reaches the base. Remainder of terminalia rather deeply recessed within this epandrial hood, a condition reminiscent of *Stichopogon* Loew.

Distribution: Ethiopian: *Margaritola mirabilis* Hull (1958).

Genus *Haplopogon* Engel

FIGURES 38, 429, 863, 872, 1638, 1660, 1996, 2001

Haplopogon Engel, Die Fliegen der Palaearktischen Region, pt. 24, Asilidae, p. 409, 1930. Type of genus: *Haplopogon nudus* Engel, 1930, by original designation.

Minute, pale pollinose flies of blackish ground color. The wings are broad and all the cells, except the anal cell, are open, and the head is much less wide than in *Holcocephala* Jaennicke. It shares with that genus the anteriorly situated, prominent ocellarium and the deeply excavated postvertex and supraocciput. Length 4 to 6 mm.

Head, lateral aspect: The head and eye strongly convex anteriorly, the length medium, the eye likewise convex posteriorly, especially below and with the medial facets greatly enlarged. Face convex and retreating, scarcely visible in profile, except slightly below, and with deep lateral subgenal creases or recessed pockets on each side of the lower eye margin. The occiput is short, both above and below, pollinose, with fine, erect, scanty pile. The proboscis is small, cylindrical, short, blunt at apex, directed downward and not projecting beyond the face; at the apex is a row of ventrolateral stiff hairs and some long hairs at the base. Palpus clearly of two segments, the first hemicylindrical and excavated, with ventral hair, the second a little longer and cylindrical with numerous, stiff, bristly hairs. Antenna attached at or just above the middle of the head in profile. It is small, comparatively slender, but shorter than the head length; the first two segments are quite short, subequal, with the second the widest and beadlike. The third segment is slightly attenuate distally, carrying a short microsegment followed by a longer, strongly attenuate, spine-tipped microsegment. Third segment with some quite long, conspicuous, dorsal bristles or bristly hairs that are much shorter in the type of genus than in American species.

Head, anterior aspect: The face is about one-fourth the head width, slightly divergent below, thickly pubescent and with fine, moderately long, scattered pile over all of the face except the portion immediately beneath the antenna. Bristles absent. Subepistomal area horizontal, excavated medially and pollinose laterally. Front short, pollinose, without pile or bristles. The ocellar protuberance is large, high, prominent, with vertical sides, set well forward and leaving the conspicuous ocelli fully visible in profile. Between the ocelli are several fine, bristly hairs.

Thorax: The mesonotum is moderately high and strongly convex both anteriorly and posteriorly. Surface of mesonotum densely pollinose, for the most part pale, with fine, short, scanty pile, including an acrostical row and dorsocentral rows and some lateral pile. Bristles are virtually absent. There is a single, stiff, bristly hair on the notopleuron, 5 or 6 post dorsocentral bristly hairs, several even more weak ones on the postalar callosity. Scutellum convex, pollinose, with a few scattered discal hairs and no bristles. Pleuron uniformly pollinose unless rubbed; it has a few fine hairs posteriorly on the mesopleuron, pronotal collar, ventral propleuron and the metapleuron. Metanotal callosity pollinose only. Slopes of the metasternum pilose posteriorly, the postmetacoxal area short but chitinized and the ventral metasterum prominent and chitinized, without pile.

Legs: The hind femur and the four anterior legs of moderate stoutness, not in the least attenuate, densely appressed pilose with a few long, bristly hairs ventrally on all of them, but no true bristles. The hind tibia is densely appressed pilose with very weak bristles or bristly hairs of which there are 7 dorsal, including an apical bristle, 5 dorsolateral, including an apical bristle, and 3 ventrolateral bristles. There are 10 bristles in the apical circlet. The anterior and middle tibiae have somewhat better developed bristles, especially the middle pair, where they are slender but longer; middle tibia with 6 anterodorsal, 6 posterodorsal, and 3 or 4 ventral bristles. Tarsi with weak bristles; the basitarsi as long as the succeeding two segments and the hind basitarsus as long as the next three segments; basitarsi bear a dense, erect tuft of sensory pile. Claws sharp, pulvilli well developed; empodium short, strongly swollen at the base.

Wings: The wings are broad, the marginal and all of the posterior cells widely open, the anal cell closed with a short stalk. Alula hemicircular but arising from the base of the vein. Middle end vein of the second basal cell exceptionally long.

Abdomen: The abdomen is short, much shorter than the wings, robust, pollinose, with soft texture, and short, quite scanty, fine pile; bristles absent. Sides of the first tergite cloaked by the metasternum. In the male are seven well developed tergites and a minute, narrow, dorsal trace of the eighth. Females have seven tergites, the eighth only produced and visible laterally, exposing the ninth dorsally. Male terminalia conspicuous, not rotate, the superior forceps developed, fully cleft, with rather long and attenuate posterolateral processes, which extend well beyond the distinctly short, obtuse remainder of the terminalia. Hypandrium strong, large but short, convex and arched, and reminiscent of certain Dioctrini, except that it lies in the true ventral position. Gonopod stout and convex but not longer than the hypandrium. It has three pairs of long, slender processes or prongs snugly tucked in beneath the proctiger. The short aedeagus is undivided. The whole lower surface of the terminalia is fully exposed. Female terminalia short, obtuse and inconspicuous, without spines.

In America, in the western states, the adults have been taken in wheat fields.

Distribution: Nearctic: *Haplopogon bullata* Bromley (1934); *erinus* Pritchard (1941); *lautus* Coquillett (1904).

Palaearctic: *Haplopogon nudus* Engel (1930).

Genus *Oxynoton* Janssens

Figures 17A, 416, 846, 855, 1668

Oxynoton Janssens, Bull. Inst. Sci. Nat. Belgique, vol. 27, p. 1, 1951. Type of genus: *Oxynoton francoisi* Janssens, 1951, by original designation.

Related to *Holcocephala* Jaennicke and immediately distinguished by the striking, dorsal extension of the mesothorax, which is developed into a hump considerably higher than the head and fully as long as the vertical height of the remaining thorax. The third antennal segment is attenuate, whereas in *Holcocephala* it widens distally; the microsegment is not plumose. Female unknown. Small species, length 5 to 8 m.

Head, lateral aspect: The head is short and wide, the eyes extensive, flattened anteriorly with the medial anterior facets very greatly enlarged. Face scarcely visible in profile, densely micropubescent, without pile except upon the lower margin. The lower pile consists of a circular row of 10 or 12 long, fine, weak bristles. The occiput is pubescent above and narrowly on the lateral margin below, leaving a large, medial area striate and bare; the pile is fine and long, but quite scanty and inconspicuous. The proboscis is of medium length, gently, attenuate, and bluntly rounded at the apex. Palpus cylindroid, with two segments; the pile consists of only a few long hairs except at the apex where there is an especially long tuft. The first two segments of the antenna are short, nearly equal, the second considerably wider apically; both segments have long bristles below, the second has a long bristle above. The third segment is somewhat more narrow, but widest basally, more than twice as long as the first two segments combined; it is composed of three parts, the basal part nearly two-thirds the length of the whole and followed by a short, minute segment to which is attached a thickened style, attenuate and drawn out to a point.

Head, anterior aspect: The face has nearly parallel sides, very slightly widened below and constituting one-fourth the head width. Front pubescent, without pile. The ocellar tubercle has 3 or 4 soft, fine hairs. Ocelli placed upon a prominent tubercular elevation with perpendicular sides, its upper level below the upper level of the eye. Vertex slightly wider than the face width.

Thorax: The mesonotum is enormously developed, swollen into an obtuse, V-shaped peak with long, dense pile anteromedially and more scattered pile medially, posteriorly behind and laterally. Notopleuron with a single fine bristle. Humerus bare. Scutellum circular with impressed rim, without pile on the disc; the margin has some 10 pairs of short, fine hairs. The propleuron is united to prosternum behind. Pleuron in general pubescent with a bare spot and some posterior pile on the sternopleuron. Hypopleuron without pile, the lateral metanotum beneath scutellum without pile. Metapleuron with a vertical row of 5 or 6 long, weak bristles.

Legs: Hind femur is slightly thickened throughout its length; ventral surface with 1 tuberculate bristle at the apical third and the dorsal subapex with 1 very slender, short bristle; otherwise with abundant, short, fine, erect pile below and short appressed pile elsewhere. Hind tibia slightly and gradually thickened towards the apex, with short, scattered, subappressed pile, and laterally 1 long bristle at the outer third and 1 quite short bristle at the basal third; apex with 2 lateral, 1 ventrolateral, 1 ventromedial, 1 medial, and 2 weaker dorsal bristles. Middle femora without significant bristles. Middle tibia with 5 stiff hairs posteriorly, 3 rather long, more conspicuous, bristly hairs anterodorsally, becoming progressively longer towards the apex. Anterior femur stout, slightly arcuate, without significant bristles; its tibia with short, fine pile, longer below in which there are 5 or 6 slender, quite weak, bristly hairs. Apex of anterior tibia without spine and with 2 long bristles below. First segment of anterior tarsus with 1 long bristle. Posteroventral and basal apices of these tarsal segments with a circlet of 4 or 5 long bristles.

Wings: The wings are relatively short and wide, marginal cell widely open; all posterior cells open. Anal cell with a short stalk. Alula present.

Abdomen: In the abdomen the tergites are only slightly convex, a little wider towards the middle or end of the third tergite. Seven tergites are visible, with an extremely short portion of the eighth segment visible on the right hand side. Male genitalia moderately conspicuous. Pile of abdomen short, fine and scanty without bristles. Postmetasternum behind the posterior coxa elongate and apparently entirely chitinized.

Distribution: Ethiopian: *Oxynoton francoisi* Janssens (1951).

Genus *Paroxynoton* Janssens

FIGURES 24, 417, 857, 866, 1663

Paroxynoton Janssens, Bull. Inst. Sci. Nat. Belgique, vol. 29, no. 42, p. 11, 1953. Type of genus: *Paroxynoton tigrinum* Janssens, 1953, by original designation.

Small, humpbacked flies distinguished from *Rhipidocephala* Hermann by the shorter antenna, more attenuate third antennal segment and the absence of a dorsal spine near the middle of the plumose second microsegment. Perhaps annectent with *Hoplopogon* Engel. Length 7 mm.

Head, lateral aspect: The head is short but quite wide, the face scarcely visible in profile either above or below. The occiput near the middle is swollen. The proboscis is short, stout, cylindrical, the apex strongly compressed laterally and truncate in profile. The palpus is large, nearly as long as the proboscis, cylindrical, with long, stout bristles apically and apparently composed of only one segment; if two segments are present they are more or less fused. The antenna is longer than the head; the first two segments are stout but short and beadlike. The third segment is attenuate, and microsegments excluded, is nearly twice the combined length of the basal segments; the third segment bears a short, distinct microsegment, followed by a much longer, stout, stylelike, plumose, attenuate microsegment, which lacks a dorsal spine.

Head, anterior aspect: The face is one-fourth the head width, with nearly parallel sides and pubescent. The lower face bears 12 to 15 long, weak, downturned, bristly hairs; upper part of face without pile. The vertex is very slightly wider than front or upper face. The ocellar protuberance is moderately high and rather abrupt, with only short, weak hairs. The head is deeply excavated above and the occiput at the vertex is anteromedially excavated, leaving the posterior eye margin oblique from the dorsal aspect. The ocellarium and very large anterior ocellus are set far forward, facing anteriorly. Eyes flattened anteriorly, the central facets unusually enlarged.

Thorax: The mesonotum is short, quite high, and in profile forming almost a hemicircle, being equally steep anteriorly and posteriorly. The entire mesonotum has erect, abundant pile which becomes even more dense on the posterior half of the mesonotum and more than twice as long as the anterior pile. Humerus pubescent, with a few scattered hairs; posterior part of mesonotum and the sides rather coarsely pubescent and the middle anterior portion pollinose. Scutellum like the mesonotum very densely micropubescent; the disc with a few, fine hairs. There seem to be no pleural bristles but there is a single, quite long, extremely delicate, slender, bristly hair at the anterior corner of the postcallosity, another on the upper mesopleuron, none on the margin of the scutellum. Mesopleuron with some fine, erect pile and the metapleuron with a long, vertical fanlike fringe of 6 or 7 bristly hairs.

Legs: The hind femur relatively short but considerably longer than the anterior 4 femora. Pile dense, appressed, the ventral surface with a fringe of 6 quite long, erect, bristly hairs; the ventrolateral surface has 3 long, rather stiff, yellow bristles beyond the middle and 2 much shorter, finer bristles before the middle. There are no bristles dorsally at the apex. Hind tibia with coarse, matted, appressed, long, pale pile and bristles as follows: dorsal surface with 6 or 7 minute bristles, lateral surface with 3 quite long, stout bristles, ventral surface with 3 bristles, the distal bristle sublateral; apex with 1 short dorsomedial, 1 long dorsolateral, and 2 or 3 ventral bristles. Middle femora with 1 minute, posteroapical bristle, the ventral margin with 5 or 6 long, slender bristles. The tibia has accentuated dorsal and ventral bristles in its ventral plane; they slightly curve forward; there are 5 dorsal bristles, the middle 3 quite long, stout, oblique, slightly curved; the ventral surface with only 3 equally long bristles. The apical bristles are included, except ventrally where there is a cluster of 3 or more short bristles. Anterior femur without bristles; its tibia has only moderately long bristles behind, 5 in number, and 4 anterodorsal bristles, these short and weak; the apex below has 2 or 3 short bristles. The claws are moderately long, slender and sharp, strongly curved at the apex; the pulvilli are four-fifths the length of the claw, the empodium is reduced to scarcely more than a third the length of the claw.

Wings: The wings are broad, the marginal cell is widely open; the second submarginal cell near the wing margin is not or scarcely wider than the base of this cell. All posterior cells are widely open and the anterior crossvein enters the discal cell at or close to the middle of that cell. Middle end vein of the second basal cell quite long; anal cell open; alula small but distinct; ambient vein complete.

Abdomen: The abdomen is more or less flattened at the base and rather wide, tapering posteriorly. Sides of the first tergite with weak pile. The middle of the tergites appear to be soft and membranous as in *Holcocephala* Jaennicke. They are wrinkled, drawn together and creased down the middle and the tergites at least beyond the second segment seem to be reduced to lateral quadrate plates bearing pubescence throughout and with stiff, subappressed pile laterally. The female terminalia consist of two very small, short, unmodified, protrusive, dorsal and ventral lobes.

No males were seen.

Distribution: Ethiopian: *Paroxynoton tigrinum* Janssens (1953).

Genus *Damalina* Doleschall

Figures 23, 424, 826, 842, 851, 1636, 1645, 2004, 2012

Damalina Doleschall, Natuurkund. Tijdschr. Nederlandsch-Indië, ser. 4, vol. 17, p. 90, 1858. Type of genus: *Damalina laticeps* Doleschall, 1858, by monotypy.

Small flies characterized by the relatively long, third antennal segment much longer than broad, with an apical style which is a little shorter than the third segment itself; this character at once distinguishes it from *Damalis* Fabricius. There are 5 normal, posterior cells; this character separates it from *Trigonomima* Enderlein in which there are only 4 such cells present, 1 being completely eliminated. Osten Sacken (1882) commented on the genus at some length. In the material I have studied, there is always a tiny, additional, dorsally placed bristle, much shorter than the ventrally placed apical element in both *Damalina* and *Trigonomima*. It should be added that in *Trigonomima* the thorax is shortened and the mesonotum rises into an exaggerated hump. Osten Sacken noted the close similarity between the two, but had only one individual of a species with only 4 posterior cells, from which one wing was already missing. I have seen several species from each genus and have examined the type of *Holcocephala hirtipes* de Meijere, which falls in *Damalina*.

Pritchard (1938) commented on *Holcocephala hirtipes* de Meijere in his revision of North and Central American *Holcocephala* Jaennicke, suggesting that a new genus should be formed for it. As I have compared the type of *H. hirtipes*, lent me by the Amsterdam Museum, with cotypes of both of Enderlein's species of *Trigonomima*, and with other species of both genera, I am unable to find any satisfactory basis for separation. All these species have the double bristle at the end of the third antennal segment, the lower one longer, of variable length and strength. While the bristle is curved or hooked in *H. hirtipes*, without more material I regard this as insufficient basis for a new genus, as it seems otherwise to be a typical species of *Damalina*. The anal cell varies widely in different species. Length 5 to 9 mm., including antenna.

Head, lateral aspect: The face retreats below and has on each side a deep, wide depression which leaves a large V-shaped space between the eyes and cheeks. Whole face pubescent, steeply convex laterally on the lower portion and with 2 rows of 2 or more pairs of bristles and 3 additional bristles above these, making 3 rows altogether. Proboscis from the dorsal aspect rather strongly swollen towards the base. The antenna is attached just above the middle of the head. The first two segments are short and the third segment elongate, compressed, and with long and short bristles near the apex.

Head, anterior aspect: The head width is twice the height. The face below antenna is nearly half the width of the head and divergent below. The vertex is slightly wider than the upper face.

Thorax: The mesonotum is shining, without pollen except medially and below the humeri and faintly in front of the scutellum on the scutellar disc and also along the lateral margin. Pleuron densely, minutely pubescent. Pile of mesonotum abundant, long, fine, erect and bristly; dorsocentral and acrostical bristles or hairs are not differentiated, although posteriorly the pile becomes abundant and longer. The following very weak, lateral bristles or bristly hairs are present: 2 notopleural, 3 or 4 supraalar; on the scutellum only across the disc and not on the margin are 3 rows of long, slender bristles or bristly hairs, some 12 in number, and nearer the base there are 5 or 6 other shorter, more slender, bristly hairs. Scutellum convex and rather thick. Mesopleuron and sternopleuron with long, abundant, stiff pile; the extraordinarily convex and protuberant metanotum is rather thickly covered with long, slender bristles or bristly hairs.

Legs: All the femora are stout and somewhat swollen, especially the hind femur, which gradually increases in thickness from the base to the outer fourth. Hind tibia unusually stout and slightly arcuate, its basitarsus as long as the next 3 segments and greatly swollen. All the femora and their tibiae with dense, dorsal and ventral lateral and medial brushes of long, stiff, bristly pile. The second, third, and fourth tarsal segments of all of the tarsi with a dense, ventral brush of appressed setae, for the most part beginning at a distance from and conspicuously removed from the bases of the segments; basitarsal pile in part glandular.

Wings: The marginal cell, all the posterior cells, and the anal cell widely open. Five posterior cells present, all open. Width of wing normal and uniformly tinged with brown; the ambient vein complete.

Abdomen: In the abdomen the tergites are completely chitinized and no evidence of medial membrane. Eight tergites present in both sexes, the eighth a little longer than the seventh, conical, narrowed slightly and also considerably narrower than the seventh tergite. The abdomen grows wider at end of third segment and is rather strongly narrowed beyond. At the end of third segment it is at least as wide as the mesonotum. Male terminalia variable. In one species the eighth tergite is large, and forms a longitudinally laterally convex, hoodlike, polished sclerite, beneath which at the apex the widely separated arms of the divided epandrium form an elongate forceps, curved to and crossing shortly at the midline and passing above the long proctiger, which lies beneath it and extends shortly beyond it; in this form, the wide, intermediate space between the epandrial arms is membranous, the gonopod is well developed, the hypandrium moderately long and the penis guides exaggerated, long, obliquely protruding below. In another species the eighth tergite is smaller, thinner, flatter, and the proctiger constitutes a broad, polished, distal, laterally convex plate with the hairy apex very short; here the arms of the forceps are long, but do not turn inward or cross; the base of epandrium is approximated toward the middle as rectangular projections still separated. Gonopod and hypandrium similar and the penis guides also prominent and projecting below but less exaggerated. Female terminalia small, protruding as a bilobed flap beyond the last tergite and otherwise characteristic of the tribe.

Distribution: Oriental: *Damalina hirtipes* de Meijere (1914); *laticeps* Doleschall (1858); *nitida* HerMann (1914); *plumipes* de Meijere (1914); *semperi* Osten Sacken (1882); *trigonoides* de Meijere (1915).

Genus *Trigonomima* Enderlein

Figures 74, 413, 858, 867, 1565, 1875, 1958

Trigonomima Enderlein, Wiener Ent. Zeitung, vol. 33, p. 164, 1914. Type of genus: *Trigonomima apipes* Enderlein, 1914, by original designation.

Small, grotesque flies, characterized immediately by the greatly elevated, short, humpbacked mesonotum. This appearance is accentuated by the high, vertical metanotum, together with the dense, conspicuous, dorsal and ventral fringes of pile on the femora, especially the middle and hind pairs. The wing has only four posterior cells and this character, together with the strongly humped mesonotum separates them from *Damalina* Doleschall to which they are otherwise closely related; both have the same type of third antennal segment. Length 6 to 9 mm.

Head, lateral aspect: The head width is three-fourths its height. Face not visible in profile, even on the lower portion, the contour of the face following the contour of the eye. The eye is of moderate length, tending to be slightly flattened over the middle of the anterior half, but strongly convex above and below and a little longer ventrally. The occiput is prominent especially on the lower portion. The pile of the occiput is scanty, consisting of a few rather long, slender, bristly hairs and with no conspicuous or definite bristles. The proboscis is extremely short, very robust, a little swollen towards the base, rather acutely pointed beginning at the outer third; the apex is more or less conical, rather pointed, and this whole apical third bears dorsally and ventrally numerous short, stiff hairs; the base ventrally has some long, quite stout bristles. Palpus large and conspicuous, almost as long as the proboscis; it consists of two segments, the short first segment hemicylindrical and excavated, the longer second segment swollen distally, cylindrical and clavate, nearly as long as the proboscis and bearing 6 or 7 strong, long, apical bristles, 2 others at the ventral apical margin, 2 more ventrally near the apex; second segment without pore. Antenna attached slightly above the middle of the head, moderately elongate, the first two segments short, especially the first, which is smaller than the second. The third segment is slightly compressed laterally, a little over twice as long as the combined length of the first two segments; its greatest width lies a little beyond the middle; it is only slightly narrowed at the base and apex. The apex is obliquely ventroapically truncate and bears dorsally a short, distinct bristly spine and bears ventrally, besides 1 or 2 short setae, a long, slender bristle; its length is three-fourths the length of the third segment. First segment with 4 or 5 long, slender bristles ventrally, one dorsally, second segment with 2 such bristles ventrally, one dorsally.

Head, anterior aspect: The head is wide, nearly twice the height. Face below antenna less than one-fourth the head width, convergent below the middle of the face and divergent at the lowest point of the eyes. Front and vertex distinctly divergent above. The subepistomal area not differentiated from the face and is receding; the lateral facial crease is wide and deep. Face thickly micropubescent, apilose, with 12 to 15 long, quite slender bristles on the lower half, the more ventral elements slightly stouter. The front is extremely short, pollinose or minutely micropubescent; the side of the front has 3 or 4 pairs of slender bristly hairs; vertex deeply excavated, with obliquely sloping sides; the ocellarium is large, wide and high, also with obliquely sloping sides; it is extended forward so that the ocelli are easily seen extended anteriorly forward from the lateral view. It bears a pair of slender bristles between the ocelli, a pair between the posterior ocelli, two pairs of rather longer bristles immediately behind the ocelli, and a pair set somewhat lower behind the ocelli. Eye facets exceptionally enlarged centrally.

Thorax: The thorax is micropubescent or subpollinose, including all except the medial portion of the mesonotum. The mesonotum and the entire thorax extremely high and humped, its elevation accentuated by the high vertical metanotum. Pile of the mesonotum scanty along the anterior border, becoming more abundant behind the humerus. There is an irregular, double row of scattered, acrostical bristles anteriorly, all of these long, erect, and fine. There are 8 to 10 fine, long hairs on the humerus, the remaining pile is more stiff and slightly bristly in character, and becomes a little longer on the posterior third of the mesonotum, especially long and abundant on the slopes above the postalar. There are no differentiated bristles except upon the scutellum, where near the middle of the disc is a transverse row of 6 long, erect, slender bristles. Propleuron extremely small and short and bearing a few stiff, short hairs ventrally; anterior collar with a band of fine, erect pile; postlateral pronotum with a few similar hairs. Upper mesopleuron with abundant, fine, erect pile, the posterior mesopleuron with a wide band of quite long, bristly, appressed pile. Posterior sternopleuron with a few stiff hairs; pteropleuron and hypopleuron apilose; metapleuron exceptionally villose with a wide, nearly vertical band of numerous, long, slender bristles and bristly pile. Metanotal slopes micropubescent only, the lateral metasternum and the ventral metasternum with some long, fine pile, the latter comparatively narrow, chitinized, separated posteriorly by a membrane; postmetacoxal area clearly membranous, the tegula with 3 or 4 rather long, slender bristles.

Legs: The femora are moderately stout without being swollen; the hind femur without distal dilation. Hind tibia relatively more thickened, the ventral surface nearly plane, the dorsal surface rather strongly arched. The dorsal pile of the anterior and middle femora is short, appressed and setate; on the hind femur the pile is longer and nearly erect or suberect, its medial pile shorter and more nearly appressed. True bristles are almost entirely absent on the legs of these flies, except on the tarsal segments and beneath the posterior and middle femora, but on the femora and tibiae there are some long, slender, bristly hairs regularly arranged, the following complement being present: several long bristly hairs on the outer half of the dorsal surface of the hind femur; a row of 5 very long, distinct, but slender bristles on the basal half ventrally; and on the hind tibia a dense, dorsal and ventral fringe of stiff, bristly pile, equally dense but shorter laterally and medially. All tarsal segments with long, dorsal terminal bristles. Ventromedial aspect of the hind femur and the basal half or more of the dorsal aspect with moderately long, dense fringes of stiff pile. Middle femur with 3 or 4 long, bristly hairs dorsally on the outer half and 7 or 8 slender, long bristles, or bristly hairs ventrally. Middle tibia and basitarsus moderately stout and with fringes of pile on all four sides similar to those of the hind tibia, a little longer dorsally and ventrally and with a row of 4 slender, anterior bristles which are distinctly longer than the pile; this tibia has 4 dorsal bristly hairs, 5 or 6 posterodorsal and 4 ventral, bristly hairs. Anterior femur with some long, stiff pile ventrally and 5 or 6 slender, bristly hairs dorsally in addition to short appressed setae. Pile of anterior tibia much less conspicuous. All tarsi have well developed pulvilli; slender, short empodia; and sharp claws.

Wings: The wings are broad, the marginal cell is open, all posterior cells and the anal cell widely open or closed in the margin. Only 4 posterior cells are present. Posterior crossvein present. Alula as wide as the costal cell; ambient vein complete.

Abdomen: The abdomen is broad, comparatively short and depressed, widest at the end of the second tergite, where it is as wide or slightly wider than the thorax. It is a little narrowed beyond the second tergite and without dorsal, membranous areas. There are eight tergites in the male, the eighth from one-half to three-fifths as long as the seventh, the third to sixth tergites of equal length, the seventh only a little shorter than the sixth and approximately as long as the first. The second tergite is nearly as long as the third and fourth combined. Female with eight tergites; the eighth being two-thirds as long as the seventh. Pile of the abdomen fine and short, except laterally, where it becomes a little longer and more erect. Sides of the first tergite with short, fine pile; sides of the second tergite with abundant, long pile; bristles absent. Male terminalia short, inconspicuous, not rotate, more prominent on the ventral portion where the lateral processes are comparatively long and stout. Female terminalia quite short; the ninth and tenth elements together no longer than the eighth tergite.

Distribution: Oriental. *Trigonomima apipes* Enderlein (1914); *canifrons* Enderlein (1914); *cyanella* Osten Sacken (1882); *pennipes* Hermann (1914).

Tribe Laphystini

The flies of this tribe are never large; usually they are medium size, and they present a robust appearance for the most part, with short, appressed pile. A few have fine, dense, erect pile or dense, curly, glittering, appressed pile. The species of *Psilocurus* Loew are comparatively slender. These genera constitute the group Prytanini of Hermann, a name which should be discarded, because it is not based on any genus.

The members of this tribe are readily recognized in males because with few exceptions the number of visible male segments is limited to 6, and the females have tergites 6 and 8 greatly reduced to linear proportions. Also, in many of the genera the marginal cell is closed at the margin of the wing, which together with the general form and frequent prominence of strong tergal bristles seems to ally these with Laphriinae.

Some workers with Asilidae express the view that the Laphystini should be placed in the subfamily Laphriinae. With this view I cannot concur. I regard them as an example of convergent evolution and point further to the fact that of nearly 20 groups placed in the tribe, the members tend to fall into 2 divisions with the marginal cell either widely open or closed in the margin. I believe, however, that the Laphystini are certainly close to the stock which led to the Laphriinae, a conclusion strengthened by the bulblike, ventral development of the terminalia in *Helolaphyctis* Hermann and *Hoplistomerus* Macquart. It should be noted, however, that when the marginal cell is closed the second vein is generally if not always recurrent, a peculiarity unique to the group and not present in Laphriinae. Their generalized character is further shown by the simple female terminalia; hence, I place them near the Dioctrini.

The adults frequent mud or wet sand banks and are sometimes found in arid situations such as the baked earth about desert rosette plants beneath which they hide or seek shelter from the sun's rays; others are found on the edge of woodland or foliage.

The group is worldwide, but poorly developed in Australia and southern South America. The majority are from the Palaearctic, Nearctic, or Ethiopian regions.

While it is possible that a key based on the character of the marginal cell, whether open or closed, may be better for preserving natural relationships, I have adopted the character of the presence or absence of tergal bristles.

KEY TO GENERA OF LAPHYSTINI

1. Tergal bristles confined to the first tergite or none present . 2

At least the first and second tergite and almost always tergites 2 to 5 with lateral tergal bristles, usually strong . 15

2. Marginal cell distinctly open, although the first vein may sometimes so closely parallel the costa that its end point is not obvious without close inspection; the second vein rarely recurrent or rectangular at apex 3

Marginal cell narrowly closed and stalked, or closed in the margin; second vein almost always recurrent at apex . 13

3. First posterior cell open 4

First posterior cell closed and stalked 10

4. Male with a short, visible seventh tergite. Both sexes with a deep conspicuous, transverse, subbasal groove on the second tergite. Lower face rounded, slightly protuberant, with several slender bristles; 2 to 6 scutellar bristles. Bohartia Hull

Tergite number not unusual or second tergite without transverse groove 5

5. Third antennal segment strongly attenuate basally, dilate subapically. Males with a prominent, inverted, bowllike terminalia. Face more or less gibbous on the lower half or two-thirds. Fourth posterior cell closed and stalked. Both sexes with a shallow, transverse, subbasal groove on tergite two. Such bristles as are present tend to be long and fine, like erect, scattered, wiry pile . Helolaphyctis Hermann

Third antennal segment not so constructed 6

6. Ambient vein absent and posterior veins evanescent toward the wing margin . . . . Glyphotriclis Hermann

Ambient vein well developed 7

7. Face rounded, produced and convex 8

Face largely plane or slightly concave, either densely or thinly pilose. Proboscis longer than the face 9

8. Face longest below the antenna; face of normal width. Eye widest below. Microsegment nearly half as long as the third segment; antenna exceptionally long. Base of second submarginal cell scarcely arched. Fourth posterior cell closed in the margin . . . Hoplotriclis Hermann

Face prominent, longest ventrally, of reduced height, strongly rounded. Proboscis not extending beyond the face. Head exceptionally wide, and the face wide, the head width two times the head height. Face, front, and occiput with dense, fine pile. Abdomen broad, flattened, and the margin densely fine pilose. First posterior cell widely open. Fourth posterior cell with a long petiole. Hexameritia Speiser

9. Face short, of little height, and concave, with stout bristles below and a few scattered hairs above. Gerrolasius Hermann

Face high, moderately produced, nearly plane; face together with front and vertex densely long, fine pilose; stout bristles everywhere absent . . . . Triclis Loew

10. Hind femur exceptionally stout and bearing stout, tuberculate, spinous bristles. Pile of mesonotum and abdomen largely flat appressed, coarse, matted and glittering. Scutellum without bristles, the ambient vein complete. Flies which have the abdomen unusually robust and short oval . . . . Tricliosceles Roeder

Hind femur not exceptionally stout 11

11. Face short and not at all produced. Ambient vein ends at anal cell. Short, appressed, pilose flies; first tergite with bristles . . . . Scytomedes Hermann

Rather long, densely pilose flies; face distinctly gibbous below 12

12. Proboscis large, prominent, much longer than face. Face prominent and produced on lower two-thirds with sharp ledge above. Pile of face, front and vertex, thorax and scutellum long and dense. Ocellarium with numerous, stiff hairs only. Palpus long and slender. Male with a short, visible seventh tergite. Terminalia inverted; superior forceps complete (Stenopogonini). Dioctobroma, new genus

Proboscis small, no longer than the face; palpus small. Face moderately produced, beginning below the antenna, and rounded; pile moderately abundant and shorter in character. Third antennal segment attenuate basally. Male with 6 tergites only . . . . Zabrops Hull

13. First posterior cell widely open; lower half of face strongly produced and gibbous and bristly. Third antennal segment strongly attenuate basally with a very short, semifused microsegment . . . . Apoxyria Schiner

First posterior cell closed and stalked; third antennal segment with 1 or with 2 distinct microsegments 14

14. Antenna slender, elongate; third segment long, cylindroid, with 2 microsegments, the second microsegment long and spoon-shaped with enclosed spine. Ambient vein complete. Acrochordomerus Hermann

Antenna with third segment stout, attenuate near apex, with a single, short microsegment enclosing centrally an apical spine. Proboscis pointed, quite robust at base and extending well beyond the face. Face pile and mystax tectiform. Ambient vein depauperate. Saucropogon, new genus

15. Hind femur exceptionally stout and enlarged. Large, robust, flies with dense, flat-appressed, glittering, matted conspicuous, abdominal pile; no scutellar bristles. Tergal bristles confined to first, or first and second segments. Tricliosceles Roeder

Femur of only normal width. Pile, if appressed, is shorter, less conspicuous. Scutellar bristles sometimes present; always with tergal bristles on second to fifth segments . . 16

16. Marginal cell open 17

Marginal cell closed, or closed in the margin 21

17. Stout scutellar bristles present 17a

Stout scutellar bristles absent; only stiff hairs or micropubescence present 19

17a. First posterior cell closed . . . . Nyximyia, new genus

First posterior cell open 18

18. Second vein recurrent at apex. Pile of thorax exceptionally short and appressed. Pulvilli reduced to mere stubs. Flies presenting a rather bare, denuded appearance. Macahyba Carrera

Second vein not recurrent at apex. Marginal cell widely open. Pulvilli well developed 18a

18a. Third antennal segment longer than the combined length of the short beadlike second segment and long first segment. The third segment tapered and reduced in thickness on the outer half. Terminalia characteristic; the epandrium bears laterally long, thin, centrally convex, uneven, posteriorly rounded, transparent, winglike processes, leaving a deep recess, which is notched. Laphygmolestes, new genus

Third antennal segment usually rather short and always swollen and dilated, so as to be wider than the basal segments. Male terminalia with a short, rotate, inconspicuous bowl-like epandrium . . . Psilocurus Loew

19. First posterior cell open 20
    First posterior cell closed and stalked; mesonotal pile setate, flat appressed . . . . Perasis Hermann
20. Short, fine appressed setate flies of a bare, denuded appearance. Small, brown and grey species with short, robust, apically rounded abdomen. Face with short, scattered pile and the short proboscis is shorter than the face. Female terminalia concealed by cupped terminal segment. Torebroma Hull
    Flies of moderately long, fine pile; abdomen more elongate; face below with a row of stout bristles, proboscis longer than face . . . . Laphystiella, new subgenus
21. Pulvilli absent or reduced to minute stubs 22
    Pulvilli present 23
22. Marginal cell closed with a long stalk. End vein of discal and fourth posterior cells nearly or quite aligned. Extremely bare, microsetate flies (Laphriinae). Anypodetus Hermann
    Marginal cell closed with a short stalk, if any. End of second vein strongly recurrent. End vein of discal and fourth posterior cells not at all aligned. Pile dense and short setate but not so contrastingly bare. Oral and occipital bristles spikelike. Last tarsal segment swollen and spiculate below . . . . . . Macahyba Carrera
23. Second vein not recurrent. Hind femur slender, its pile and bristles weak . . . . Laphystia Loew
    Second vein moderately to strongly recurrent at apex. Hind femur except in *Martinia* usually large, or very large and thickened, and usually with strong, spine bearing, ventral tubercles 23a
23a. Second vein moderately recurrent at apex. Hind femur slender, with at most weak pile and bristles. Pulvilli nearly as long as claw but quite slender. Scutellum with bristles . . . . Martinia, new genus
    Second vein strongly recurrent. Hind femur large, usually with spine bearing tubercles below. Scutellum without bristles; margin and disc with short, stiff, usually curled pile. Often rather large and robust flies . . 24
24. Ambient vein complete. Hind femur quite stout, usually with strong tubercles and spinous bristles. Male terminalia enlarged ventrally . . . Hoplistomerus Macquart
    Ambient vein ends at the anal cell; smaller flies. Hind femur enlarged but not exceptionally. Weak femoral tubercles present, or absent altogether. Male terminalia not unusually prominent ventrally . Trichardis Hermann

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Genus *Laphystia* Loew

Figures 30, 443, 881, 890, 1978, 1980, 2005, 2007, 2022

Laphystia Loew, Linnaea Entomologica, vol. 2, p. 538, 1847. Type of genus: *Laphystia sabulicola* Loew, 1847, by monotypy.

Asicya Lynch Arribálzaga, Anal. Soc. Cient. Argentina, vol. 9, p. 224, 1880. Type of genus: *Asicya fasciata* Lynch Arribálzaga, 1880, by monotypy.

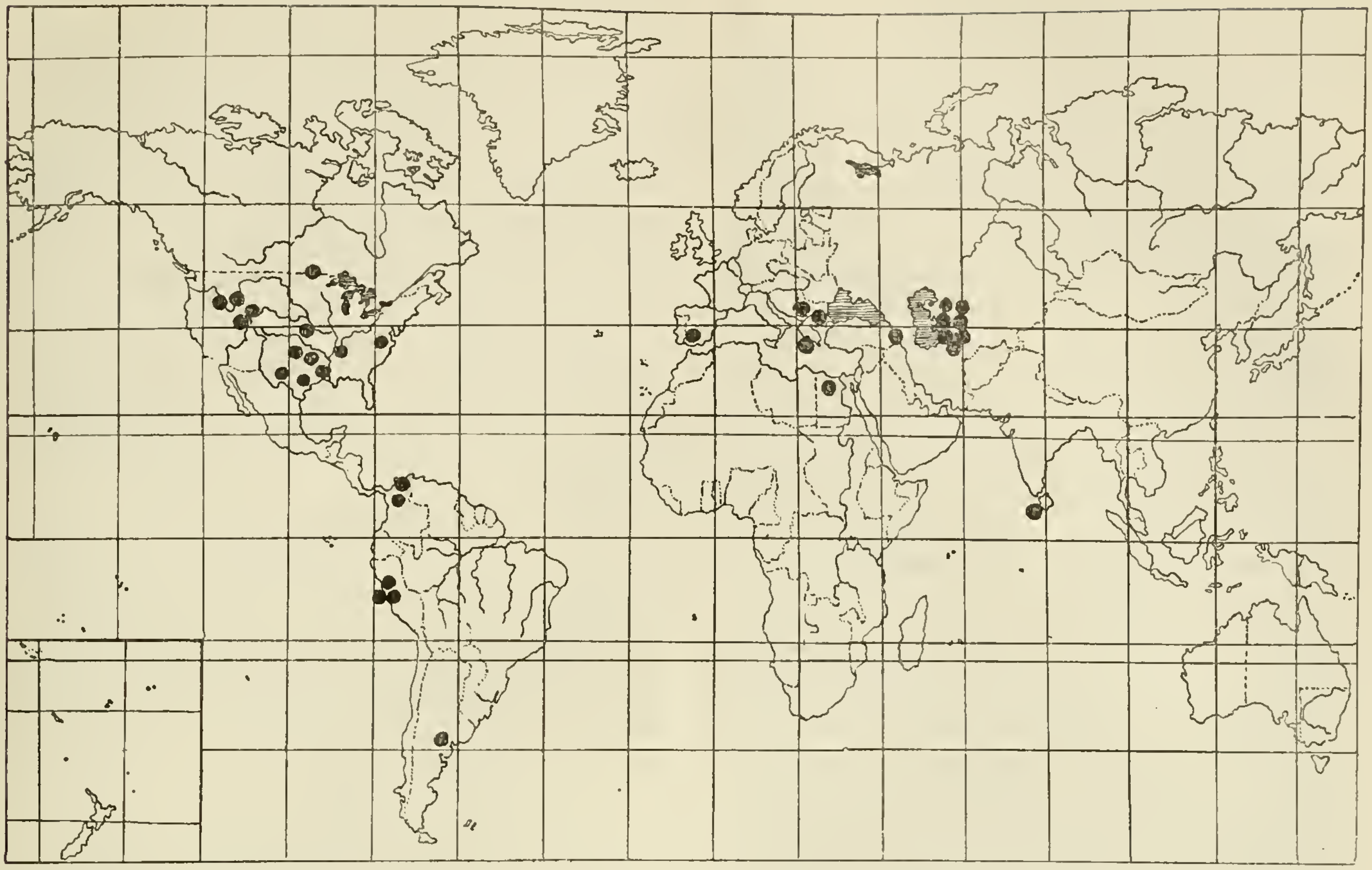
Laphyctis Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 15, p. 338, 1859. Type of genus: *Stichopogon gigantella* Loew, 1852, by original designation.

Laphystia has 1 subgenus, *Laphystiella*, new subgenus.

Pollinose, medium size to small flies, of robust type, characterized by the generally bare appearance of thorax and especially the abdomen, which is due to the short, appressed pile. The robust third antennal segment bears a very short microsegment, followed by a larger, oblique, spoon-shaped microsegment. The cylindrical proboscis is unusually short and obtuse apically. The face and slightly divergent front are both short and wide. On the wing the anterior branch of the third vein is strongly sigmoid and arched at the base; the first posterior cell is narrow and narrowly open, or rarely closed in the margin and the marginal cell varies from moderately widely open to closed in the margin. Moreover, the sides of the tergites bear lateral, subposterior rows of distinct bristles. Length 8 to 15 mm.

Head, lateral aspect: The length is two-thirds of the height. The face is moderately prominent throughout, nearly straight and vertical. The eye is strongly convex anteriorly and usually equally developed above and below. In the type of genus there is a gradual recession of the eye beginning at the upper third and continuing below. The occiput is moderately prominent but obliterated near the vertex and is more conspicuous ventrally. Pile of occiput abundant, rather long and fine, especially below, but short and scanty dorsally. The upper occiput has 3 to 5 pairs of bristles, sometimes reduced to thick hairs or in other species they are stout and sharply differentiated. The proboscis is shorter than the face in the type of genus, obtuse apically, cylindrical on the outer half, and very strongly and abruptly swollen at the base; in some species it is longer than the face. A medial ridge is present; the apex has fine bristly hair dorsally and along the apex a middle lateral fringe which may be turned downward. Base of proboscis with a number of long, fine hairs. Palpus minute in the type of genus; first segment short and swollen, second segment slender, short and cylindrical, bare, porate, with 1 or 2 fine apical bristles; the first segment is hemicylindrical, excavated and sometimes more or less fused.

Head, anterior aspect: Face below antenna one-third the head width and slightly divergent below. Face wholly pubescent, with rather abundant long pile laterally, becoming longer above the epistoma and with 1 or 2 pairs of distinctly slender bristles in the middle above the epistoma, or there may be two rows of stout, long bristles containing 6 or 7 pairs. The antenna is attached at the upper third, elongate but rather stout, the first two segments of nearly equal length, the second a little shorter. The third segment is nearly twice as long as the first two and of nearly uniform thickness throughout; it is rather thick and bears apically two microsegments; the first is quite short, the second is longer but extended outward obliquely ventrally so that the apex is strongly truncate, almost spoonlike with enclosed minute concealed spine. The pile of the first antennal segment consists of stiff, bristly hair below, a few setae above and characteristically with 2 pairs of stout, long, anteriorly directed bristles; second segment



Text-Figure 11.—Pattern of distribution of the genus *Laphystia* Loew.

with a few short setae apically. The front is short, pollinose, with considerable pile laterally but without bristles. The vertex deeply excavated, the whole front and vertex distinctly though only moderately divergent; the ocellarium is large, wide, with moderately sloping sides, pollinose and bearing between the ocelli 4 or 5 pairs of short, erect, stiff hairs or rarely 1 or 2 bristles. Eye facets centrally enlarged.

Thorax: The thorax is minutely appressed pubescent. The mesonotal length is twice the height. Pile of mesonotum characteristically minute, appressed, and curled setate; in some species there are also abundant, long, fine hairs. Acrostical bristles poorly differentiated. The mesonotal pile remains equally short posteriorly and appressed. The type of genus displays the following complement of lateral bristles: no humeral, 2 notopleural, 2 supraalar, 2 to 4 postalar, and no scutellar. In *Lyphystia gigantella* Loew the lateral bristles are much longer and stouter, and there are 1 notopleural, 4 supraalar, no postalar, and no scutellar bristles. Scutellum moderately thick, convex, largely shining or wholly micropubescent, with short, flat appressed pile. Propleuron anteroventrally with a tuft of abundant, fine pile, the anterior collar with stiff hairs only; posterior propleuron with numerous, stiff hairs, almost bristly. The upper sternopleuron has a few, fine hairs. Upper and posterior mesopleuron, upper pteropleuron, and posterior hypopleuron with numerous, long, fine hairs. Metapleuron with a vertical band of very long hairs, the upper elements almost bristlelike. Metanotal slopes micropubescent only, lateral and ventral metasternum pilose, the latter forming a wide, chitinized, isolated, pubescent band, the postmetacoxal area membranous; tegula pubescent only.

Legs: The legs are moderately stout; the femora are densely, short, appressed setate on all sides including the ventral surface, to which may be added a few, fine, rather long, slender, ventral hairs at the base; the ventral pile varies from short and appressed to long, copious and erect. The following complement of mostly short and weak bristles is present: hind femur with 1 at the base ventrolaterally, a minute bristle dorsally on either side at the apex, a somewhat longer one on either side subapically; its tibia with 2 extremely weak small dorsal, 4 somewhat larger dorsolateral and 4 longer, stout and well developed ventrolateral, besides 2 other short basal bristles; apex with 2 dorsal, 1 lateral, 2 medial, and 3 or 4 ventral bristles; base of tibia narrow, the apex nearly twice as wide; the ventral surface has a copious fringe of fine erect hair; no brush of setae present. Middle femur with 2 weak subdorsal bristles near the apex, the tibia dorsally with 5, anteriorly with 3, posteriorly with 5, and anteroventrally with 4, posteroventrally with 4 which are basally quite long and stout. Anterior femur with a few, long, fine hairs ventrally, its tibia with 2 or 3 short dorsal basal and 2 longer bristles distally; and with short anterodorsal, 4 posterior, and 3 quite long posteroventral bristles. Tibial apex without spine; all claws sharp; the pulvilli in the type of genus reduced to one-half the length of the claw; empodium long and blade-like. In *Lyphystia gigantella* Loew the pulvilli are of full length.

Wings: In the type of genus the marginal cell is closed, either in the margin or with a minute stalk. The base of anterior branch of third vein emerges at a right angle and is strongly arched. The posterior cell is open though narrowed to half its maximum width; sometimes closed; fourth posterior and anal cells closed and stalked. The second basal cell ends in 3 veins; alula large, the ambient vein ends with the anal vein.

Abdomen: The abdomen is as wide as the mesonotum or wider; it is typically densely and minutely, short, appressed pilose. In the male there are 6 tergites only; in the female 7 or 8, the last 2 quite short, of equal length, and about one-fourth as long as the sixth; the eighth may be very largely concealed beneath the seventh in some species. Sides of first tergite with 4 or 5 pairs of stout bristles and remaining tergites, with a transverse row, a little beyond the middle laterally, containing 2 to 5 and usually 3 or 4 stout bristles. Male terminalia rotate one-half, rather large and conspicuous with a ventrally placed, bowl-shaped epandrium. The true ventral side is open, exposing the interior; the epandrium continuous and undivided, except for apical sulcus; the apical margin often nearly transverse. Gonopod large basally, as long as the epandrium, with one or more apically acute processes extending as far as the large, fused proctiger. Hypandrium triangular or short. The female terminalia are composed principally of a single, apically notched, dorsal plate, rather small and barely protruding beyond the last tergite.

These flies are characteristic inhabitants of damp mud and sand flats beside rivers, lakes, and ocean shores, and are generally found close to the water's edge.

Distribution: Nearctic: *Laphystia ?albiceps* Macquart (1846); *annulata* Hull (1957), *annulata interrupta* Hull (1957); *canadensis* Curran (1927); *confusa* Curran (1927); *flavipes* Coquillett (1904); *lanhami* James (1941); *limatula* Coquillett (1904); *litoralis* Curran (1931); *notata* Bigot (1878); *ochreifrons* Curran (1931); *opaca* Coquillett (1904); *rubra* Hull (1957); *rufiventris* Curran (1931); *rufiventris* James (1931); *rufofasciata* Curran (1931); *sexfasciata* Say (1823); *texensis* Curran (1931); *torpida* Hull (1957); *varipes* Curran (1931).

Neotropical: *Laphystia columbina* Schiner (1868); *fasciata* Lynch Arribálzaga (1880); *robusta* Hermann (1908); *salti* Curran (1931); *schnusei* Hermann (1908).

Palaearctic: *Laphystia aegyptiaca* Efflatoun (1937); *arenacea* Paramonov (1930); *armeniaca* Paramonov (1930); *carnea* Hermann (1905); *erberi* Schiner (1865); *hispanica* Strobl (1906); *hypopygialis* Paramonov (1930); *kashgarica* Paramonov (1930); *latiuscula* Loew (1870); *metallescens* Hermann (1905); *sabuletorum* Paramonov (1930); *sabulicola* Loew (1847); *turkmenica* Paramonov (1930).

Ethiopian: *Laphystia argentiofasciata* Engel (1929); *gigantella* Loew (1852).

Oriental: *Laphystia stigmaticalis* Bigot (1878).

Verrall (1909) in his appendix list of Palaearctic asilids mentions a *Laphystia selenis* Hermann from Gobi. I have not found this species in the Zoological Record and cannot give the date or say if it has been published.

Laphystiella, new subgenus

Type of subgenus: *Laphystia argentiofasciata* Engel, 1929.

Flies with comparatively long, fine pile and the marginal cell open in contrast to the *Laphystia*, *sensu stricto*, in which the marginal cell is closed or is closed in the margin. Face below with a row of stout bristles. Proboscis much longer than face. This species is from Rhodesia. Length 12 to 15 mm.

Laphygmolestes, new genus

Type of genus: *Laphygmolestes flavipes*, new species.

Rather small flies characterized by minute, abundant, flat appressed setae on the thorax and scutellum, somewhat longer, flat appressed setae on the abdomen, and with an habitus strongly suggestive of *Atomosia* Macquart. While the marginal cell is widely open, these flies must be to a certain extent annectent between the Laphystini and the Atomosini. The abdominal tergites have strong bristles on the sides and the scutellum has 2 pairs of bristles. The face is not unlike *Laphystia* Loew. In the key to genera this fly will go to *Psilocurus* Loew. From both *Laphystia* and *Psilocurus* it is distinguished by the quite elongate, differently formed antenna, and the different terminalia. Length 10 mm.

Head, lateral aspect: The eye is rather hemispherical from the anterior side but almost plane vertically from the posterior side. The occiput appears in profile only on the lower half of the head and is poorly developed there. Lower half of occiput with numerous, coarse hairs; bristles begin just below the middle of the head and consist of 10 pairs on each side; all of the bristles are weak, including the upper elements. The face is nearly plane with the eye, except on the lower third which, while relatively short, is gently rounded and gibbous. The whole face is micropubescent with 10 or 12 short hairs on the upper part. On the lower third of the face there are 6 moderately stout, long, pale bristles arising in the middle above the epistoma and also 3 or 4 additional and more slender bristles on either side, besides several other bristles still lower and opposite the upper part of the subepistoma. The slender proboscis extends distinctly beyond the face, is held obliquely forward, tapers from the base to the blunt, slender apex; it is laterally compressed at the base; and bears only a few, fine hairs at the base and a few at the extreme apex; on each side about midway is a longitudinal depression. Palpus appears to consist of two segments but with the basal segment fused to the lower part of the head; second segment small and clavate with a few weak bristles at and near the apex. The antenna is attached at the upper fourth of the head and is considerably longer than the head. The first segment is four or five times as long as wide with 7 moderately long, weak bristles below; second segment beadlike, a little more than a fourth as long as the first segment. The third segment, excluding the distinct microsegments, is slender but longer than the first two segments combined; near the apex it tapers until its width is only half as great as in the middle of this segment. Two microsegments are present, the first quite short, the second longer, wider, blunt, cupshaped and with enclosed spine.

Head, anterior aspect: The width of face beneath the antenna is a fourth the head width; face with parallel sides, no wider below. The whole surface is densely appressed micropubescent. The front is small and short due to the fact that the antenna is placed high on the head, and the front across the middle is wider than the face but is again narrowed toward the vertex. Vertex very little less wide than the face. Ocellarium small and low but with steep sides and without bristles or pile. Sides of the front along the eye margin with 4 small, short, fine, yellowish hairs.

Thorax: The thorax is rather low, the surface is largely bare and shining but with rather abundant, minute, appressed setae. The humerus is unusually long and gently sloping backward. The prothorax is also longer and more extensive than in *Atomosia* Macquart. The scutellum is flattened on the disc, hemicircular, but with the scutellar margin nearly rectangular. It bears a pair of stout, moderately long, widely spaced bristles and an additional pair not quite so stout on each side, not far from the base. There is no differentiated acrostical or dorsocentral pile or bristles on the mesonotum and the scanty discal hairs of the scutellum are short and appressed. Notopleuron with 2 rather long, stout, reddish bristles, supraalar region with 3 of decreasing thickness and length and the postalar callosity with 1 stout bristle, quite long and 1 shorter, more slender bristle. Pronotum, humerus, the notopleuron narrowly, the area above the wing narrowly and the margin of the scutellum, except at the apex, all pollinose, or covered with very fine micropubescence. The sides of the metanotum without pile or bristles. Upper posterior corner of the mesopleuron with a single, rather conspicuous, long bristle. Whole pleuron covered with pale pollen ranging into fine micropubescence and with a few, fine, scattered, short hairs. The convex and protuberant metapleuron with a narrow band containing 4 long, slender bristles and 8 long, bristly hairs. Postmetacoxal area widely membranous. Posternum fused as in *Laphystia.*

Legs: All the femora are moderately stout without being swollen. Dorsal pile of all the femora moderately abundant, appressed and setate. The femora are large, bare and shining ventrally, except that the hind femur ventromedially bears a rather dense band of moderately long, erect pile not reaching the base; the hind femur also has 1 or 2 longer, slender bristles ventromedially near the base. The ventromedial surface of the hind tibia has a similar band of conspicuous, rather dense, erect pile throughout nearly its whole length, which changes to appressed setae at the apex. Hind tibia with 3 moderately strong dorsolateral bristles, 4 ventrolateral, and no posterior elements. Hind tarsus slender; the first segment as long as the next three segments, the fourth and fifth of equal length and beadlike. Middle femur with a long, slender bristle at base below and 2 bristly hairs; also at the outer fifth with 1 anterior bristle and 1 anterodorsal bristle. Middle tibia with 3 moderately stout, long, anterodorsal bristles, 3 equally long posteroventral bristles and 3 long, ventral bristles, besides 3 much shorter posterodorsal bristles. Anterior femur with a long, bristly hair at base below, a weak bristle anteriorly at the apex and 2 posterodorsal bristles near the apex, one much closer to the apex than the other. Anterior tibia with 3 short dorsomedial bristles, 2 scarcely longer posterodorsal bristles, and with 2 much longer posteroventral bristles lying beyond the middle; also, there are 2 ventral bristles beyond the middle. Claws long, sharp, only slightly curved at the apex and slender. Pulvilli long, wide, the empodium bladelike.

Wings: The wings are broad, everywhere villose except in the middle of the first and second basal cells, and the whole wing is hyaline. The marginal cell is rather widely open by almost its maximal width, the anterior branch of the third vein rises abruptly but is broadly arched and the whole sigmoid. First posterior cell open but narrowed to a little less than half its maximal width. Upper anterior intercalary vein straight and quite rectangular to the third vein, the medial crossvein short and pulled backward. Fourth posterior cell closed and stalked. Anal cell closed with very short petiole. Posterior crossvein present. Alula present but only moderately deep. The anterior crossvein enters the discal cell just before the basal third. The third vein branches just beyond the end of the discal cell.

Abdomen: The abdomen is convex, relatively narrow, with parallel sides to the end of the fourth segment and not wider than the mesonotum. The pile is dense, appressed and setate, with posterior bands of coarser, pale setae across the apical margins, which widen somewhat toward the sides of the tergites; in the posterior corners these bands bear underlying pollen, especially on the second and third segments. Only the sides at the base of the first tergite bear a few, longer, erect hairs. The first four tergites each bear laterally vertical rows of conspicuous, stout, pale bristles, 4 near the base of the first segment, 3 in the middle of the lateral margin of the second segment, 2 or 3 on the third segment, and 1 on the fourth segment. Only six segments are visible. The terminalia are large, especially the epandrium, which is rotate at least 45 degrees. The epandrium laterally bears long, thin, centrally convex, uneven, posteriorly rounded, transparent, winglike processes, which leave a deep, notched recess between them in which the long, setate proctiger fits. Ventral surface of terminalia widely open, much of it tucked in under the sixth tergite; the lateral gonopod is large, subtriangular, extends out from under the tergite. The aedeagus extends downward and backward and then is strongly bent and reflexed posteriorly as a single tube enclosed by slender, pronglike pseudoclasper on each side, the medial surface of which bears a brush of erect, bristly hairs.

Distribution: Neotropical: *Laphygmolestes flavipes*, new species.

Laphygmolestes flavipes, new species

This species is characterized by the light brownish yellow legs, the minute, appressed, brassy setae of the mesonotum and the appressed, yellowish white bands of hairs on the abdomen. Length 10 mm.

Male. Head: The head is black, all the pile and bristles pale yellow, except on the lower occiput where it is almost white. Antenna black with the third segment brownish black.

Thorax: The thorax is black, moderately shining on the mesonotum, the setae brassy in color, the pollen rather pale brassy yellow.

Legs: The legs are wholly brownish yellow, the pile and bristles everywhere of the same color, except for a narrow band of appressed, brown setae anteriorly on the anterior and middle tibiae and the whole dorsal half and whole lateral surface of the hind femur, and the whole of the hind tibia where the setae are dark brown. Dorsal pile of tarsi brassy. Extreme apex of the hind femur and extreme base of its tibia black.

Abdomen: The abdomen is shining black with a slight opalescent reflection. Middles of the second to fourth tergites gently convex so that from the side the abdomen appears corrugate. The extensive, appressed setae are black, except for the bands on the posterior margins and the posterior corners, which are yellowish white. Basal half of terminalia black but changing to brown before becoming transparent on the lateral wings of the epandrium. Proctiger pale, brownish yellow.

Type: Male, Corumba, Brazil, December 14–25, 1919. Type in the Cornell University collection.

Nyximyia, new genus

Type of genus: *Nyximyia niger*, new species.

Characterized by the numerous, quite stout bristles over the whole of the face; stout, vertical bristles of the occiput; the numerous, stout bristles on the margin of the scutellum; united prosternum; absence of bristles or pile on the lateral metanotum and by the character of the wing. The first and fourth posterior cells are each closed with a long stalk, the marginal cell is widely open, although the second vein is more or less recurrent, and the ambient vein is wanting. Male terminalia rather large and inverted. The relatively large inverted terminalia are much larger than in *Laphystia* Loew and are rather like that of *Nusa* Walker. The absence of the ambient vein and the remarkably stout, widely distributed bristles of the face and the stout bristles of the occiput are also characters found in *Nusa*. The widely open marginal cell and the venation generally are suggestive of *Laphystia*. It may be regarded as an annectent genus between the two groups. Length 14 mm., including antenna.

Head, lateral aspect: The face is moderately long and conspicuous in lateral profile but is gently and slightly convex so that it is almost equally prominent above and below. The subepistoma is long and oblique, the cheeks short, the occiput is prominent below becoming less in evidence towards the vertex and the eyes are developed a considerable distance laterally beyond the occiput. Distinct bristles begin a little below the middle of the occiput and become exceptionally stout and spikelike on the upper occiput. Sides of front with stout bristles. Vertex but little excavated, the ocellar tubercle low and with only short, fine, bristly hairs. First antennal segment 2½ times as long as the second, which is short and almost beadlike. Lateral and ventral margins of the first segment with numerous, stout, black bristles. Third segment missing. Face with some 8 vertical, irregular rows of quite stout, rather long, downwardly curled bristles which are for the most part erect or suberect. Proboscis slender, produced but little beyond the face and directed obliquely forward. It is rather tapered on the outer fifth. Palpus composed of two segments; the first excavated, the second spindle-shaped, with weak bristles.

Thorax: The thorax is gently convex and densely covered on the mesonotum with coarse, suberect, bristly hairs. Humerus with abundant, bristly pile and 2 or 3 weak bristles. Whole margin of the notopleuron with a row of stout bristles, several of which are especially stout. There are 4 quite stout bristles above the wing. Postalar callosity with 5 long, stout bristles; scutellar margin with 6 or 7 pairs of conspicously stout, long, radiating bristles. Lateral metanotal callosity without bristles or pile. Mesopleuron near the upper posterior corner with 3 or 4 bristles, at least two of which are stout and conspicuous. Postmetacoxal area membranous.

Legs: All the femora are moderately stout without being swollen; their pile is rather dense, coarse and bristly; this pile is chiefly subappressed but more or less erect ventrally. Bristles are stout, moderately long, but not numerous. Hind femur with a subapical, a dorsomedial, a dorsal, a lateral and a posteroventral bristle. Distributed along this surface are 6 other posteroventral bristles. Bristles of the tibiae are short, stout and numerous, in 2 rows on the anterior tibia, and especially conspicuous and longer on the middle tibia where there are 6 rows. The bristles are also long but somewhat fewer in number on the hind tibia. Claws and pulvilli long and slender.

Wings: The wings are shorter than the abdomen; the marginal cell is widely open, the second vein meets the costa at a right angle. Anterior branch of the third vein is sigmoid and ends well above the apex of the wing. First posterior cell closed and stalked; fourth posterior cell closed with a longer stalk and this cell is considerably shorter than the discal cell. Anal cell closed and stalked. Posterior crossvein long. Ambient vein absent.

Abdomen: The abdomen is elongate, broad and gently convex and rather densely covered with coarse, appressed, bristly hairs. Sides of the first tergite with about 7 stout bristles in a vertical row on each side. In the posterior corners of the second, third, fourth, and fifth tergites are patches of weak bristles not readily distinguished from the surrounding pile. The male terminalia almost completely inverted, intermediate in size between *Nusa* and *Laphystia*. The epandrium is large, rather long and bowllike, and from the true ventral aspect is rather widely open. Sides of the gonopod with a pair of spikelike bristles and the apex with two pronglike, somewhat flattened protuberances.

Distribution: Australian: *Nyximyia niger*, new species.

Nyximyia niger, new species

A dull black fly with the abdominal tergites more shining and with the outer sixth of the postmargins on tergites two to four linearly white pollinose. Pile and bristles black. Wings brownish and pale, the color caused by exceptionally minute villi and the veins pale brown. The subcostal vein almost yellow. Marginal cell open; first and fourth posterior cells closed and stalked. Length 14 mm., including antenna.

Type: Male, New South Wales. In the Australian Museum, Sydney.

Genus *Torebroma* Hull

FIGURES 47, 433, 864, 873

Torebroma Hull, Ann. Mag. Nat. Hist., ser. 12, vol. 10, p. 891, 1957. Type of genus: *Torebroma gymnops* Hull, 1957, by original designation.

Small, remarkably bare flies of brown color, overlaid by grey pollen. The face is short with a very short proboscis and ventrally bears a few, quite short bristles. The antenna is elongate with a spoon-shaped microsegment. Related to *Acrochordomerus* Hermann. It is distinguished by the widely open marginal and first posterior cells and the extremely reduced pile. Length 10 mm.

Head, lateral aspect: The head is of medium length, the face short but of rather uniform length and barely convex; the occiput is likewise short and almost concave along the middle of the eye margin. Toward the cervix it becomes a little more prominent and because of a short posterior ventral recession of the eye on the lower eighth of the head, it is more conspicuous at this point. Pile of occiput fine, short, and scanty. Bristles absent and only a few stiff, bristly hairs above. Proboscis short, not quite extending as far as the face, directed forward, robust at the base, tapered to a blunt apex, which bears a small dorsal apical tuft of bristly pile. Palpus minute and cylindrical, the second segment elongate, the first segment quite inconspicuous and more or less fused, almost wanting. Antenna attached at the upper sixth of the head and distinctly elongate and slender, longer than head. First two segments subequal, a stout, short bristle ventrally on the first segment and pale setae above and below. Third segment not quite as wide as the second, its length, without microsegment, a little greater than the total length of the first two segments. At its apex there is a very short microsegment followed by a much longer, spoon-shaped microsegment, as stout as the third segment, pointed at the apex and its basal recess with a concealed spine.

Head, anterior aspect: The head is broad, as wide as the thorax, the face at the plane of the antenna wide and slightly divergent below and with deep creases along the horizontal, subepistomal area. Face minutely pubescent, with scattered, short, subappressed pile over the middle and in the middle above the epistomal margin with 3 pairs of quite short, slender bristles. Front short, pollinose, with a longitudinal fissure on either side, shallow; the sides of the front are parallel, the vertex is moderately excavated with slanting sides and pile; the ocellarium is large, transverse, with steep sides and large anterobasal ocellus, and fine pile between and in front of the posterior ocellus.

Thorax: The thorax is moderately high and arched posteriorly and anteriorly, pollinose with scattered, microscopically minute, flat appressed setae. The humerus with similar pile and some which is a little longer but appressed. Mesonotal bristles weak and short. There are 1 notopleural, 5 or 6 supraalar, and no postalar or scutellar bristles. The postalar area, does, however, bear pile. Scutellum with microscopic, scattered, appressed setae and dense pollen, the surface convex. Propleuron with only fine pile, mesopleuron on almost its whole surface with short, fine, scattered, appressed hairs and a tuft in the upper corner of the sternopleuron. Posthypopleuron with an erect patch of pubescence. Metapleuron usually protuberant, with a vertical band of moderately long, fine pile, Metanotal callosity pollinose only, whole pleuron pollinose. Metasternum with pile posteriorly and below. Postcoxal area membranous, prosternum fused laterally.

Legs: All the femora are stout, especially the hind pair, though scarcely or but little swollen; their pile is appressed, dense, pale and setate; bristles absent except for weak bristles at the apices of the tibiae and 3 quite slender, small, inconspicuous, anterdorsal bristles on the hind tibia, and 2 or 3 similar posteroventral and anteroventral bristly hairs. Also a small bristle on the hind femur dorsally and another laterally at the outer sixth. Three ventral, minute tubercles on hind femur have stubby, minute bristles. Claws quite slender, sharp; the pulvilli slender but long; the empodium short and a little swollen basally.

Wings: The base of the wing is broad, the apex more narrow, the marginal cell is widely open, with the second vein, which is barely curved, at apex; the anterior branch of the third vein is strongly arched at the base and the second submarginal cell strongly flared apically. The first posterior cell is widely open, the fourth posterior cell and the anal cell each closed with short stalks; the alula large, lengthened distally; the ambient vein complete; all veins pale, yellowish white.

Abdomen: The abdomen is exceptionally robust, as wide as the thorax, comparatively flattened over the middles of the tergites, the sides parallel to the end of the fourth segment. The first segment is almost as long as the second, all the segments pollinose on the basal half, and the whole lateral margin and the sixth segment pollinose throughout. Pile of abdomen microscopically minute, appressed, fine setate, including the lateral margin. Sides of first tergite with 4 pairs of short, weak bristles and 1 or 2 minute, weak bristles in the middle of the lateral margin of the second to fifth segments. Pile of the sternites more scanty but equally short. Female with 6 tergites, the seventh deeply concealed beneath the long, basilaterally curled sixth tergite. Female terminalia minute, consisting of a short, lappetlike, ninth tergite divided by a medial crease and the whole structure turned forward.

Distribution: Palaearctic: *Torebroma gymnops* Hull, 1957.

Genus *Bohartia* Hull

FIGURES 56, 419, 860, 869, 1673, 1681, 1995

Bohartia Hull, Rev. Brasileira Biol., vol. 18, no. 3, p. 317, 1958. Type of genus: *Bohartia bromleyi* Hull, 1958, by original designation.

These are small but robust flies with dense, fine, short, appressed, mesonotal pile; all cells of the wing open. Flies of blackish color and with a low gibbosity on the lower half of the face. Related to *Gerrolasius* Hermann. These flies are aberrant members of the Laphystini and have in males a short, seventh tergite present. They have all other characters of this tribe. All femora are distinctly swollen, the scutellum bears slender bristles and there is a pronounced, transverse, subbasal groove on the second tergite, which in other members of the group lies on the basal margin itself. Bristles restricted to the first tergite and weak. Length 7 to 8 mm.

Head, lateral aspect: The head of medium length, the face quite short above, very slightly concave in the middle and with a low rounded gibbosity on the lower half; it is conspicuous chiefly because of the recession of the eye. The occiput is short and of nearly uniform extent above and below, its pile comparatively sparse and fine, with bristles beginning at the middle of the head and only moderately stout dorsally. The proboscis extends a little beyond the face, is directed obliquely forward, blunt at the apex, cylindrical, and only slightly swollen at the base. Palpus minute, composed of two segments, the second being quite short and the first segment apparently excavated. The antenna is attached a little above the middle of the head, moderately elongate and not longer than the head; the first and second segments of equal length and both with several long, slender, bristly hairs, more stout on the second segment. The third segment is slender, slightly narrowed at base and apex and a little longer than the combined length of the first two. It bears a distinct truncate microsegment which is a little longer than wide and carries a spine at the apex.

Head, anterior aspect: The head is about 1½ times as wide as high, the face below the antenna is one-fifth the head width and very slightly divergent below. The face is coarsely pubescent and bears only 3 or 4 long, fine hairs laterally on the upper half; on the gibbous portion below are numerous slender bristles and bristly hairs extending a little beyond the apex of the proboscis. Of these a transverse row of 6 located on the dorsal border of the gibbous portion of the face are stouter. The subepistomal area is almost horizontal. Front distinctly divergent, as wide or wider than the lower face and again convergent at the vertex. The front is sunken, pollinose, with a subocular row of 3 long and 3 shorter bristles and submedially on each side, a group of 4 or 5 fine, erect hairs. The vertex is but little excavated in contrast to *Laphystia* Loew; its sides are slanting, the ocellarium high and placed opposite each posterior eye corner. The posterior vertex is not greatly excavated; the ocellarium bears 3 conspicuous, long, slender bristles between the posterior ocelli.

Thorax: The mesonotum is low, pollinose and densely fine appressed pilose; pile undifferentiated except for 2 or 3 fine, long bristles on each side in front of the scutellum. Humerus with slightly longer pile anteriorly. The lateral bristles are weak, not very stout or long. The complement of bristles consists of: 1 or 2 notopleuron, 1 supraalar, 1 postalar, 1 suprapostalar, and 3 or 4 pairs of weak scutellar bristles. Propleuron with only fine pile; most of the mesopleuron, the sternopleuron, pteropleuron, hypopleuron polished, shining, bare and pitch black; the upper border of the mesopleuron, upper posterior corner of the sternopleuron, and upper posterior corner of hypopleuron and the metapleuron all bear fine micropubescence, and there is a row of scanty, fine hair along the posterior border of the mesopleuron and upper posterior margin of the sternopleuron. The metapleuron bears a vertical row of 5 exceptionally slender bristles and some hairs.

Metanotal callosity micropubescent only. Posterolateral metasternum and the narrow ventral metasternum densely pilose; postmetacoxal area membranous; prosternum dissociated.

Legs: All the femora are swollen, especially the hind femur, which in the middle is about 2½ times as thick as its tibia. Pile of legs fine and appressed. The hind femur and tibia have dense fringes of fine, erect, ventral pile. Bristles are weak, the hind femur at most bears 1 or 2 stiff hairs ventrally and 1 medially at the base. This tibia has 2 weak bristles dorsolaterally along the middle, 3 or 4 others dorsomedially and 2 more stout, ventrolaterally on the apical third; apex with 10 bristles, most of them weak. Middle tibia with slightly longer bristles and fine, long, stiff hairs posteriorly. There is a conspicuous, long bristle anteriorly on the outer third and a much smaller one at the middle, and of the posterior elements 3 are moderately stout and some 5 or 6 are mere hairs; in addition there are 2 long, slender, posteroventral bristles. Anterior tibia quite similar to the middle pair, but only the posterior elements may be considered to be bristles. The middle tibia anteriorly has a row of 4 slender bristles. Apex of anterior tibia without spur. All basitarsi as long as the next two segments. Claws slender, sharp; the pulvilli long; the empodium half as long as the claw.

Wings: The marginal cell quite widely open; the anterior branch of the third vein arises gently; the anterior crossvein enters the discal cell a little before the middle. All posterior cells and the anal cell widely open; alula short and the ambient vein complete.

Abdomen: The abdomen is comparatively robust, but not quite as wide as the mesonotum. Males with the first tergite widest; females with the third and fourth tergites widest. Males with seven tergites, the sixth is about half as long as the fifth and the seventh half as long as the sixth. Females with eight tergites, reduced in the same proportions. Both males and females, but especially the males, show a deep, transverse depression or groove on the second tergite fully one-fourth of the distance from the base; this is in contrast to other members of the tribe, where, if present at all, it is quite basimarginal. Subbasal portions of the next two tergites also with deep depression but nearer the base. Pile of abdomen fine and quite appressed. Lateral pile on the second and third tergites slightly longer and more erect, and still longer on the first tergite where there are 7 pairs of quite weak bristles. Bristles absent on the remaining segments. Male terminalia rotate one-fourth to the left. The epandrium is short but quite wide, with a short, lateral lobe or process. Gonopod small, short, not at all prominent. Hypandrium well developed with a small, lateral process. Female terminalia very short and inconspicuous and almost concealed by the seventh tergite.

Distribution: Nearctic: *Bohartia bromleyi* (1958).

Genus *Helolaphyctis* Hermann

Figures 39, 536, 861, 870, 1676, 1878, 1929

Helolaphyctis Hermann, Zool. Jahrb., vol. 43, p. 193, 1920. Type of genus: *Helolaphyctis modesta* Hermann, 1920, by original designation.

These are medium size flies or smaller, belonging to the Laphystini. They are characterized by the short proboscis, cylindrical at the apex but compressed laterally in the middle. The ventrally gibbous face bears numerous bristles. Also characterized by the short, appressed pile of the mesonotum and abdomen and the basally widened, second submarginal cell with the first posterior cell open. From *Apoxyria* Schiner to which it would appear closely related, it is separated by the first four femora being normal, the hind pair only slightly thickened, the hind tibia moderately thickened and neither of these tibia or their femora arcuate. Length 10 mm.

Head, lateral aspect: The face is nearly plane with the eye on fully the dorsal half; on the lower portion is a low, rounded, dorsally abrupt, ventrally retreating gibbosity. The eye is strongly convex anteriorly, plane posteriorly throughout the greater middle portion and rather strongly, though convexly recessive anteroventrally. The occiput is thick medially below the middle but otherwise obliterated in profile. The pile of the occiput is long, fine and rather abundant ventrally, replaced by a prominent row of 16 bristles on the dorsal half, with an extra row of shorter middle bristles. Dorsally the occiput is rather strongly excavated, leaving the eyes reduced and rounded on their posterior medial corners. Proboscis short, not extended beyond the face; the apex is bluntly truncate, cylindrical, the middle portion laterally compressed, the ventral fissure prominent, the base a little swollen both laterally and dorsally and the medial ridge absent. The apex and the ventral surface apically bear a fringe of stiff hairs; the base ventrally has a few, quite long, fine hairs. Proboscis directed obliquely downward. Palpus clearly of two segments, both short, the first cylindrical and excavated, the second swollen through the middle, not porate and with several ventral and lateral long, subapical, stiff, bristly hairs.

Antenna attached at the upper third of the head and moderately elongate. The first segment is slightly longer than the second, convex and a little swollen below; third segment attenuate on the basal fourth, slightly compressed laterally, widened in the middle to 2½ times its basal width and bearing apically a quite short microsegment which is a little longer ventrally, dorsoapically oblique, and with an exposed subdorsal spine. First segment with numerous, long, slender bristles ventrally and laterally and at least 2 longer and stouter, as long or longer than the combined length of the first 2 segments; the dorsal setae stiff but shorter. Second segment with 2 or 3 rather long, slender bristles or stiff setae dorsally and ventrally, besides 1 or 2 shorter hairs.

Head, anterior aspect: The face below antenna one-fourth of head width, and divergent below. The subepistomal area is moderately large, slightly oblique. Face thinly pubescent, with 8 or 10 short hairs on the plane upper portion; the gibbosity is thickly covered with numerous, quite long and slender bristles, continued down the sides on the upper half of the epistoma. Front micropubescnt with a marginal row of long, slender bristles; vertex deeply excavated, with oblique sides; the ocellarium high and prominent and bearing a pair of rather stout, long, divergent bristles between the ocelli; and behind with 2 or 3 pairs of short pale hairs. Anterior eye facets strongly enlarged.

Thorax: The pleuron everywhere minutely micropubescent, the mesonotum shining, with pubescence only adjacent to the humerus medially and below the postcallosity. Pile of mesonotum dense, quite short, curled, flat appressed, setate and brassy, with a few, fine, long, bristly dorsocentral hairs on the anterior half but only 1 or 2 posteriorly. Acrostical bristles not differentiated. The following complement of lateral bristles present: no humeral bristles, the humeri without the conspicuous tuft of weak bristles in *Apoxyria* Schiner; 2 notopleural, 1 of these much the weaker; 1 supraalar; 1 postalar; and 1 pair of scutellar bristles; all these are weak, slender and long. Scutellum moderately thick and convex, with abundant, appressed, brassy, curled pile basally. Prothorax with abundant, long, fine pile ventrally and similar pile on the collar and posteriorly; bristles absent. Anterior sternopleuron and the upper posterior sternopleuron with a tuft of coarse pile. Upper and posterior mesopleuron with numerous, appressed, long, coarse hairs; posthypopleuron with many, fine, erect hairs; pteropleuron apilose; metapleuron convex with a vertical band of long, fine pile or bristly hairs. Lateral slopes of the metanotum strongly convex and bullose but separated from the medial portion only by a shallow depression without pile. Lateral slopes of the metasternum with abundant pile. Ventral metasternum wide, chitinized, with numerous, long, fine, erect hairs; postmetacoxal area short and membranous.

Legs: Hind femur a little swollen, beginning near the base and reaching the maximum width before the middle; the lower surface is not quite plane. Hind tibia stout, and a little swollen, beginning at the base. Dorsal pile of all the femora short, appressed and setate, ventral surface of the hind femur with a dense fringe of fine, erect pile beginning in the middle and extending over the ventromedial aspect; hind tibia with a similar ventral fringe; appressed setae confined to the medial surface. Dorsal margin of the hind femur with 4 to 6 fine, long, bristly hairs; this tibia has moderately stout bristles, 2 lateral at the middle and just beyond the middle, 2 dorsolateral beyond the middle, and 5 short, slender dorsomedial bristles. The hind basitarsus as long as the next three segments and much less robust than in *Apoxyria.* Middle femur with a weak anterodorsal bristle at the outer fourth; this tibia with prominent bristles, 3 long, stout anterodorsal, 5 or 6 short posterodorsal, 4 ventral, and 2 anteroventral. Anterior femur with a true dorsal row of 4 fine bristles on the outer half; its tibia has 5 or 6 short anterodorsal bristles; 8 posterodorsal, 3 or 4 long posteroventral bristles, and 5 or 6 slender, ventral, bristly hairs. Apex without spine. All tarsi end in sharp claws, long pulvilli and long, bladelike, not swollen empodium.

Wings: The wings are broad, marginal cell open though greatly narrowed; the apex wide and convex, the vein ending at a right angle; anterior branch of the third vein strongly sigmoid, ending above the apex of the wing, posterior branch ending well behind the apex; base of second submarginal cell very strongly swollen aneriorly at the base. First posterior cell open but narrowed; fourth posterior and anal cells closed but stalked. Alula short; ambient vein complete.

Abdomen: The abdomen is as wide as the thorax; six tergites in the male; eight tergites in the female, but the seventh and eighth greatly reduced and very short; the eighth is three-fourths as long as the seventh, but seventh is only about one-fifth as long as the sixth. Pile of abdomen moderately long, abundant and stiff on the sides of the first tergite; bristles absent. There are a few, fine, long hairs on the extreme, lateral margins of the second tergite, becoming fewer and shorter on the remaining tergites; the greater part of the pile on all the tergites is short, flat appressed, and brassy. Female terminalia very short and inconspicuous, protruding a short distance beyond the eighth tergite, the ninth nearly as long as the eighth but the tenth tergite minute. The first tergite is nearly three-fourths as long as the second, the first sternite appears to be absent or greatly reduced, the second bears considerable long pile and is considerably shorter than the corresponding tergite. Third sternite and fourth are also considerably shorter but the fourth and fifth appear to end with their corresponding tergites. A female from the Hermann collection was studied; males of two new species have been seen.

Distribution: Neotropical: *Helolaphyctis americana* Carrera (1955); *modesta* Hermann (1920).

Genus *Hexameritia* Speiser

FIGURES 32, 420, 425, 862, 871, 1994

Eutrichodes Hermann, Zool. Jahrb. vol. 43, p. 190, 1920. Preoccupied. Type of genus: *Dasypecus micans* Philippi, 1865, by original designation.

Hexameritia Speiser, Zool. Jahrb., vol. 43, p. 447, 1920. Change of name.

Small flies readily recognized by the dense, rather wholly pilose appearance of the head, thorax and legs and the lateral margins of the abdomen. Moreover, the lower half of the face is rounded and a little protuberant, densely beset with fine bristles or bristly pile, the proboscis is short and truncate, the abdomen exceptionally wide, flattened and shining. Length 10 to 12 mm.

Head, lateral aspect: The head is of medium length, increased by the prominent occiput. The face is very short above and almost even with the eye margin, becoming moderately prominent and rounded on a little more than the ventral half. The eye is convex anteriorly and nearly plane posteriorly; the occiput is prominent both above and below but slopes gradually away from the eye margin towards the center of the head. It is densely covered with long, coarse pile, which dorsally changes to weak, bristly, proclinate pile. The proboscis is unusually short, scarcely extending beyond the face, cylindrical, with truncate apex and numerous, long, fine hairs ventrally upon the basal half. Dorsal carina absent. Palpus exceptionally long and slender, of two segments, extending almost the length of the face. The basal segment is short, the pile scanty. The antenna is attached at the upper third of the head; it is as long or longer than the head and the third segment a little longer than the first 2 segments combined. The third segment is slender, of nearly uniform width or a little narrowed subbasally and a little dilated subapically. It has a short, comparatively wide, apically rounded microsegment which may be dorsally open with enclosed spine.

Head, anterior aspect: The head is exceptionally and unusually wide and the face a little less than one-third the head width. The gibbous, or protuberant, portion of the face is densely beset with long, slender bristles and there are 7 or 8 shorter, bristly hairs on each side of the upper face. The front is quite short, considerably wider than the face, and with a conspicuous tuft of numerous, long, stiff hairs along each eye margin. The ocellarium is prominent with vertical sides and several, long, bristly hairs. Vertex moderately excavated, the sides with many long, stiff hairs. Anterior eye facets strongly enlarged.

Thorax: The mesonotum is quite low, thickly covered with conspicuous, flat appressed, curled pile among which there are considerable number of fine, long, erect hairs; bristles extremely weak. There are 2 or 3 notopleural, 2 supraalar, 3 or 4 postalar, and no scutellar bristles. The whole scutellum is covered with scattered, exceptionally long, fine hairs which on the margin become a little stiffened and a little longer. The scutellum is convex. Propleuron with stiff bristly pile only. The prosternum is fused in the middle below and narrowly above. The lateral propleuron and dorsal mesopleuron bear dense tufts of stiff pile. Pteropleuron bare. Metapleuron with dense, long, bristly pile. Metanotal callosity without pile. Postmetacoxal area short but membranous.

Legs: The hind femur is gradually dilated from the base to the apex and densely beset on the dorsal, lateral, and ventral surfaces with long, stiff, bristly pile; medial surface with abundant, appressed, short pile. Hind tibia stout, like the femur, with numerous, bristly hairs on all sides except the medial, and many of these hairs developed into slender bristles, of which there are at least 5 rows, each containing 6 to 8 elements. Hind basitarsus short and stout, the next 3 segments beadlike, their dorsolateral bristles long, stout and finely attenuate. Anterior and middle femora and their respective tibia moderately stout and their pile and bristle components similar to that of the hind legs, their tarsi also similar. The tarsi end in well developed pulvilli, a basally swollen empodium and sharp claws.

Wings: The wings are broad, the marginal cell distinctly open, the first posterior cell only slightly narrowed, the fourth posterior and anal cells closed with a long stalk. Upper and lower end vein of the discal cell of equal length, the base of the second submarginal cell strongly arched. Ambient vein complete, alula well developed. Wing almost wholly villous.

Abdomen: The abdomen is wider than the thorax, rather strongly flattened and shining, with comparatively sparse, fine, appressed pile in the middle of the tergites; this pile becomes longer and denser along the lateral margin giving it a somewhat shaggy appearance. There are six tergites present in the female with an exceptionally narrow, linear trace of the seventh tergite and hidden beneath the seventh a trace of the eighth tergite may be seen. Female terminalia is small, short, inconspicuous, without spines, the proctiger protrudes a short distance beyond the last tergite. No males were seen.

Distribution: Neotropical: *Hexameritia micans* Philippi (1865); *splendens* Philippi (1865); *tricolor* Schiner (1868).

Genus *Gerrolasius* Hermann

FIGURES 34, 414, 917, 926, 1678

Gerrolasius Hermann, Zool. Jahrb., vol. 43, p. 189, 1920. Type of genus: *Gerrolasius meridionalis* Hermann, 1920, by original designation.

Small, compact, robust flies characterized by the very short, curled, appressed, setate pile, the open posterior cell, sigmoid anterior branch of the third vein, the ambient vein complete to the anal cell, and the comparatively elongate, slender antenna. The hind femur is distinctly but moderately swollen. Only the first 2 tergites bear lateral bristles, those of the second tergite barely distinguishable from pile. Length 8 or 9 mm.

Head, lateral aspect: Length of the head is two-thirds the height. The eye is comparatively long and very strongly convex anteriorly, plane through the middle third posteriorly but strongly convex dorsally and also recessive anteriorly on the lower third. The occiput is quite short ventrally and obliterated on the upper three-fifths. The pile of the occiput consists of some short, scanty, stiff hairs extending along the middle and becoming a little longer ventrally; this pile is subappressed, more or less curled and directed outward, and arises close to the eye margin. Set more deeply within the occiput are 7 slender bristles on the ventral half, 2 in the middle, a little more stout, and on the upper occiput, though deeply removed from the eye margin, are 5 or 6 quite stout pairs of nearly straight bristles. The proboscis is short but relatively slender and cylindrical or slightly compressed laterally near the apex, with a prominent dorsomedial ridge extending from the base and tapering near the apex. The proboscis is not longer than the face, quite bluntly truncate apically, and bears dorsoapically a tuft of bristly hair; on the ventral surface on the outer third, on each side, is a row of some 6 or 7 short, stiff hairs and near the base ventrally are 4 exceptionally long, fine hairs. The proboscis is directed chiefly forward and slightly downward. Palpus clearly of two segments, both short, the first segment hemicylindrical and excavated, with several, ventral, bristly hairs. The second segment is swollen through the middle, narrowed at the base and apex, and with a single quite long, slender, apical bristle, considerably longer than the total length of the palpus; second segment with a minute apicolateral pore.

Antenna attached at the upper fourth of the head, comparatively elongate and slender. The first segment is not quite twice as long as the second; third segment missing in the only example available to me. The first segment is plane dorsally, distinctly swollen, convex in the middle from base to apex, and bears 2 stout, moderately long bristles and 6 or 7 additional, shorter, bristly hairs besides 1 or 2 minute dorsal setae. The second segment is considerably swollen beyond the immediate base, wider than the first segment and with 2 or 3 ventral setae. The face is comparatively short on the dorsal half and gently concave; the antenna arises from a low eminence, the lower half of the face is gently rounded and convex.

Head, anterior aspect: Face below antenna less than one-third the head width. Subepistomal area small, only slightly oblique, deeply concave and bare. The face is micropubescent, with bristles restricted to the lower half and with at least 4 pairs of moderately long, rather stout bristles above the epistomal margin, and with several additional, much more slender, bristly hairs below these bristles. In the middle of the face on the lower third are 3 pairs of close-set, slightly shorter, but stouter bristles; upper half of face with a few, short, curled hairs on each side. The front is short, thinly micropubescent, with along the eye margin a row of bristly hairs. The vertex is deeply excavated, with strongly sloping sides; the ocellarium is large and high, its sides not quite vertical and bearing in the middle 2 pairs of fine, comparatively short, bristly hairs and with an additional pair behind the ocelli. Anterior eye facets strongly enlarged.

Thorax: The thorax is densely appressed pubescent on all of the pleuron except the lower anterior corner of the mesopleuron, middle of the sternopleuron and narrowly on the margins of the mesonotum; the greater middle portion of the mesonotum is shining. Pile of mesonotum very short, curled, appressed and setate, without differentiated acrostical or dorsocentral bristles. The following complement of long, slender, lateral bristles present: 2 notopleural, 3 supraalar, 1 postalar, 2 pairs of scutellar bristles. Scutellum moderately thick, convex marginally, densely short, curled pilose, the basal crease deep. Propleuron ventrally and laterally without pile. The dorsal collar has a band of fine hairs and the upper lateral sclerite has abundant, long, fine pile which is more or less appressed and directed backward. The upper posterior portion of the sternopleuron, the posterior half and dorsal margin of the mesopleuron with numerous, moderately long, coarse hairs; the mesopleuron on its posterior margin near the middle has a long and comparatively stout bristle; pteropleuron with a few long hairs, the upper posterior hypopleuron with several and the gently convex sternopleuron has a vertical band of long, slender bristles and bristly hairs. Lateral metanotal slopes bullose and micropubescent only. Lateral slopes of the metasternum and the ventral metasternum with abundant pile; postmetacoxal area large and distinctly membranous; tegula with 1 or 2 short setae.

Legs: All the femora are stout and a little swollen; the hind femur perhaps a little more than the others, not quite plane ventrally, most of the swelling dorsal and emphasized through the middle. Dorsal pile of the femur short, dense, appressed and setate. Hind tibia swollen distally from the base, the ventral surface of this tibia and of the femur with abundant, long, fine, erect pile; the medial surface has brush of appressed setae only at the extreme apex. The following complement of long, stout bristles is present: hind femur with 1 lateral on the apical fifth, 1 dorsolateral on the apical fourth, its tibia with 1 stout dorsomedial on the apical fourth and 4 to 5 stout dorsolateral, 4 lateral and 3 ventrolateral on the distal half; apex with 6 to 8 bristles. Middle femur considerably shorter than the hind pair, although the latter are not elongate; it bears a very stout anterior bristle on the apical fourth, some fine, long hairs ventrally at the base; its tibia has 2 distal anteroventral and 1 or 2 short bristly hairs near the middle, 1 anterior at the basal third, 2 long, stout anterodorsal, 2 or 3 shorter posterodorsal, 3 quite weak posterior and 2 long, stout, distal posteroventral bristles. Anterior femur without bristles and only minute short hairs ventrally; its tibia has 2 moderately long, stout, posterodorsal bristles on the distal part and 1 stout, long posteroventral on the outer fifth, and 2 slender, short anteroventral bristles on the distal part, which are little more than bristly hairs. Apex without spine, the basitarsus slender. Tarsi end in sharp claws, plane basally for most of their length, the bladelike empodium half as long as the claw.

Wings: The marginal cell is widely open, anterior branch of third vein sigmoid, second submarginal cell strongly swollen anteriorly at the base; posterior branch of third vein ending well behind the wing apex; the second submarginal cell is flared and trumpet-shaped. The first posterior cell is slightly narrowed to three-fifths of its maximum width; fourth posterior cell closed with a long stalk; middle end vein of the second basal cell comparatively long; anal cell closed with a short stalk; alula present but narrow, with a short, free, distal lobe. The ambient vein is strong, ending at the anal cell. The anterior crossvein enters the discal cell shortly before the middle; entire wing villose.

Abdomen: The abdomen is robust, almost as wide as the thorax, wider than the mesonotum and rather strongly convex on the tergites except on the first one; the surface is thickly micropunctate. Males with six tergites only, the sixth almost as long as the fifth, its sides a little narrowed and compressed laterally but its dorsal aspect straight and therefore not cupped although the abdomen is slightly convex and drooping as a whole. Sixth tergite rather triangular in lateral profile, its ventral apical margin convex. Pile of the abdomen dense but quite short and appressed, with some short, more erect pile laterally on the first tergite. Sides of first tergite with a pair of short, stout bristles; remaining tergites without bristles.

Distribution: Ethiopian: *Gerrolasius meridionalis* Hermann (1920).

Genus *Triclis* Loew

FIGURES 40, 439, 911, 920, 1675, 1941

Triclis Loew, Bemerkungen über die Familien Asiliden, p. 17, 1851. Type of genus: *Dasypogon olivaceus* Loew, 1851, by monotypy.

Gastrichelius Rondani, Dipterologiae italica prodromus, vol. 1, p. 156, 1856. Type of genus: *Gastrichelius halictivorus* Rondani, by original designation.

Gastricheilus Bigot, Ann. Soc. Ent. France, ser. 3, vol. 5, pp. 535, 1857, *lapsus*.

Flies of small or medium size, characterized by the short proboscis, the short, nearly straight face bearing in the type of genus abundant, long, fine pile without bristles. The front is short, the vertex deeply excavated, the ocellarium prominent, with dense, long pile only. The thorax and abdomen are densely pilose, the latter with appressed pile. The apex of the marginal cell is reduced and the first posterior cell considerably narrowed. Length 10 to 25 mm.

Head, lateral aspect: The length of the head is a little more than half the height. The face is short but almost equally produced above and below and nearly straight in profile. Eye of moderate length, strongly convex anteriorly, but posteriorly recessive below to a moderate extent. The occiput is short, except medially, but becomes quite prominent ventrally, and only part of this expansion is due to the eye recession. Pile of occiput abundant, long, fine, crinkled throughout the full length of the occiput; bristles absent. The proboscis is short, slightly longer than the face, subcylindrical or a little flattened laterally with moderate, medial ridge; the apex is bluntly rounded with a few, fine hairs. The base is not or but little swollen and has a few, fine, long hairs below.

Head, anterior aspect: The face below antenna a little more than one-fourth the width of head; the subepistomal area is short, small, horizontal. The face is pubescent and bears everywhere, except narrowly along the eye margin, abundant, long, fine, delicate pile; bristles absent. The antenna is attached at the upper fourth and is of moderate length, the first segment swollen, slightly longer than the narrow second segment. The third segment is a little wider than the second, gradually widened from base to the middle and then narrowed to the apex, and bears a moderately long, microsegment open apically and carrying a spine. Pile of the first segment coarse and long and abundant on all sides except the medial. On the second segment there are 5 or 6 short, stiff, bristly hairs dorsally and ventrally. The front is exceptionally short, shining or thinly pollinose, the vertex deeply excavated with unusually large ocellar protuberance; anterior ocellus large, set low and with numerous, long, stiff, bristly hairs over the middle area; bristles absent. Anterior facets strongly enlarged.

Thorax: Mesonotum shining or at most thinly pollinose and with micropubescence laterally and over the whole pleuron. The pile of the mesonotum is dense, rather fine, nearly erect, and without differentiated acrostical bristles or hairs. In the type of genus the following complement of only moderately long or stout lateral bristles present: no humeral, 3 or 4 notopleural, 2 or 3 supraalar, 2 or 3 postalar, no scutellar bristles. Scutellum convex, rather thick with impressed rim; it has dense, long, more or less erect pile on the surface, appressed posteriorly, and with fine, shorter pile on the margin. The propleuron everywhere densely long pilose; bristles absent on the collar. Anterior and upper sternopleuron, pteropleuron, the whole of the mesopleuron, except the lower anterior corner, the posterior hypopleuron and the metapleuron with extensive tufts of dense, long, slender, crinkled pile; bristles absent. Metanotal slopes micropubescent only; lateral and ventral metasternum densely long pilose, the latter chitinized and isolated, the postmetacoxal area membranous. Tegula with a few bristles.

Legs: All the femora of moderate thickness, with abundant, dense, rather long pile which is appressed laterally and dorsally on the apical half; the ventral pile is abundant and erect. The hind tibia is stout at the base, gradually swollen at the apex, with nearly erect, dense, ventral fringe but with a brush of setae only at the immediate apex, where it is ranked. The following complement of bristles present: hind femur with 2 rather short, delicate bristles ventrally, 1 near the middle, 1 at the outer fourth, a slender, dorsolateral subapical bristle, and a similar medial bristle. This tibia has 3 quite fine dorsal and 3 stout, oblique, ventrolateral bristles on the outer third. Middle femur with 3 stout bristles anteriorly, one in the middle, a close pair subapically, a slender weak bristle posteriorly at the apex; its tibia with 3 short dorsal, 2 short and 2 longer anterodorsal, 5 longer posterior, 3 long ventral and a fourth at the apex, besides 3 long posteroventral bristles. Anterior femur with 1 stout bristle anteriorly on the outer third, its tibia with 4 or 5 short anterior dorsal, 5 dorsal, 5 or 6 posterior, and 4 long posteroventral bristles; apex without spine. Tarsi rather short, ending in stout, sharp claws, long pulvilli and blade-like empodium.

Wings: Marginal cell open, slightly less than the maximum width; anterior branch of third vein sigmoid, strongly arched at base and ending shortly before the apex; posterior branch ends far behind. First posterior cell narrow throughout its length, narrowly open; fourth posterior cell closed with a short stalk; anal cell closed. Alula rather large; ambient vein complete.

Abdomen: The abdomen is robust, as wide as the mesonotum, a little flattened on the tergites. There are six tergites present in the male, the sixth but little shorter than the seventh; pile of the abdomen dense, rather short but flat appressed, longer and somewhat more erect and quite dense laterally. Lateral bristles absent on all tergites. Male terminalia rotate one-half, moderately large, subbulbous on the basal portion of the epandrial plate and rather deeply notched dorsally.

Distribution: Nearctic: *Triclis flavipes* Jones (1907).

Neotropical: *Triclis argentifacies* Williston (1901).

Palaearctic: *Triclis anatolicus* Hermann (1920); *octodecimnotatus* A. Costa (1893); *olivaceus* Loew (1851) [=*halictivorus* Rondani in collections]; *rufescens* Austen (1914).

The two American species, *Triclis flavipes* and *argentifacies*, are probably closer to *Zabrops* Hull than to *Triclis*, which appears to be a European genus. Only a type study will determine their real position.

Genus *Hoplotriclis* Hermann

Figures 18, 426, 983, 992, 1672, 1687, 2024

Hoplotriclis Hermann, Zool. Jahrb. vol. 43, p. 186, 1920. Type of genus: *Dasypogon pallasii* Wiedemann, 1828, by original designation.

Hairy flies of medium size, with tumid occiput and convex, long pollinose face. The antenna is unusually elongate and the third segment bears a long, blunt microsegment, which is quite as wide as the third segment. The proboscis is short and robust and directed forward. The wing is broad, with the first posterior cell open but narrowed and the fourth closed in the margin. The basal expansion of the second submarginal cell lies half above and half below the third vein. Length 16 mm.

Head, lateral aspect: The head is unusually long and the face prominent, rounded and bulging. The face bears dense, long, yellow pile, stiff in character, arising from microtubercles. The pile extends from the base of the antenna all the way down the face. The occiput is unusually prominent, except at the vertex. Upper portion of occiput with only stiff, yellow pile and a few extremely weak bristles near the top. The pile of the middle and ventral portion is long, dense and fine. The proboscis is short, subcylindrical, basally swollen, its apex subtruncate and pilose. The proboscis is held directly forward. The palpus of two segments is minute and cylindrical with long pile at the apex and sides. The antenna is unusually elongate, longer than the head, slender, of nearly uniform width. The third segment longer than the first two combined, and bears a long, robust microsegment. First two segments with fine setae above and below.

Head, anterior aspect: The face below the antenna is one-fourth the head width and only slightly divergent below. The vertex is moderately excavated, the ocellar protuberance high, with steep sides and numerous, long, stiff hairs. The upper ocelli are visible in profile; the very large anterior ocellus is directed forward. Sides of the front with 5 or 6 long, weak, yellow bristles.

Thorax: The mesonotum densely covered throughout with moderately long, shining, curled, pale hairs; laterally this pile is almost matted in places. Humerus densely pilose; notopleuron with two extremely weak bristles scarcely discernible; supraalar with two equally weak bristles; postalar with dense pile. Scutellum with abundant, moderately appressed pile without bristles. Pleuron densely appressed, long, matted pilose over the mesopleuron; pteropleuron with a few hairs; hypopleuron with a large patch of long, appressed pile; metapleuron widely covered with long, fine pile; slopes of the metanotum micropubescent but without pile. Hypopleuron, metapleuron and mesopleuron micropubescent; pronotal collar densely long pilose.

Legs: All the femora are stout without being especially enlarged. The hind femur is somewhat longer and densely covered with appressed pile which becomes a little longer ventrally, especially towards the base, where it is suberect; bristles absent. The hind tibia is stout from base to apex, a little wider at the apex, with abundant, short, appressed pile; apex with moderately long, reddish bristles: 2 lateral, 3 ventrolateral, 1 dorsal, 4 medial, and 2 ventral. In addition, laterally near the apex are 2 small, short bristles. Bristles, however, are absent on one side. Hind basitarsus short, only twice as long as wide. Middle femur with an anterior patch of numerous, stout, moderately long, reddish yellow bristles confined to the basal half; this group contains 10 bristles altogether. The middle tibia has 5 posterior and 4 weak dorsal bristles and at the apex 2 dorsal, 1 posterior, and 4 ventral bristles, which are stout. Anterior femur with a few, long hairs ventrally; its tibia has 4 or 5 short bristles posteriorly; apex with 2 dorsal, 2 anterior, 3 or 4 ventral, 1 or 2 posterior bristles, but without spine. Claws moderately long, sharp, strongly curved at the apex; the pulvilli is four-fifths as long as claws, broad and flattened, truncate at the apex; empodia from one-third to one-half as long as claws, stout basally.

Wings: The wings are broad, marginal cell widely open, the second submarginal cell is only moderately expanded at the base, and half of this expansion lies below the third vein. First posterior cell open but narrowed. Fourth posterior and anal cells closed in the margin; ambient vein complete, including the wide alula.

Abdomen: The abdomen is rather stout but not quite so wide as the thorax; the tergites are only gently convex, the sides of the first tergite with long, subappressed, dense, pale pile but without special bristles and remaining tergites without bristles. The pile is abundant, flat appressed, moderately long dorsally, becoming much more abundant, longer and flat appressed laterally and extending over the edges as posteriorly directed fringes. The second tergite is creased across the middle and apparently simulating two segments; on this assumption there are six long tergites, the seventh being rather short but only partially concealed by the sixth. Terminalia rather short and inconspicuous. Sternites with only long tufts of pile. Postmetacoxal area membranous. Lateral metasternal slopes bare but with a few hairs above at the extreme upper posterior part. The female terminalia are partially visible externally but are inconspicuous and have no spines.

Through the courtesy of the Vienna Museum a female type of Wiedemann's species of this genus was studied.

Distribution: Palaearctic: *Hoplotriclis pallasii* Wiedemann (1828).

Genus *Glyphotriclis* Hermann

Figures 31, 434, 875, 884, 1892

Glyphotriclis Hermann, Zool. Jahrb., vol. 43, p. 186, 1920. Type of genus: *Triclis ornatus* Schiner, 1868, by original designation.

Small, compact, quite robust flies, the pile short, strongly appressed and setate. The tergites laterally bear short, stout bristles, the face is quite wide, long pilose throughout its length, without bristles. The first posterior cell of the wing is closed with a rather long stalk and all of the marginal veins are evanescent. Length 9 or 10 mm.

Head, lateral aspect: Length of head one-half the height. The face is prominent, very gently convex and rather more strongly convex from the dorsal aspect. The eye is of average length, slightly more narrow below, due to a moderate ventral recession which begins near the middle of the head. The occiput is thick and rather tumid, but chiefly over the submedial and middle portion from which point it slopes gently down to the eye. It is prominent ventrally but much less so on the dorsal fifth. The pile of the occiput is rather abundant but coarse and confined to the middle and lower portion, being replaced above on the upper third by 10 pairs of moderately stout, long bristles. The proboscis is directed forward, exceptionally short, shorter than the face, stout and robust; it is subcylindrical on the outer half but with the basal half rather flared and laterally swollen below. The apex is sharply truncate ventrally in an oblique direction; it bears numerous, short, fine hairs on the truncate portion. Base of proboscis with numerous, long, fine hairs. Palpus clearly of two segments, the first segment rather larger and a little longer than the second; second short, cylindrical, slightly narrowed at the apex and bearing 5 or 6 bristles set close to the apex. The antenna is attached to the upper third of the head and comparatively short. The first segment is slightly longer than the second, swollen ventrally; the second segment is beadlike; the third segment, with the short microsegments included, is 1½ times the combined length of the first two segments. Third segment thick, rather swollen, and laterally a little wider distally than at the middle or base. It bears a single, quite short, thick, stubby microsegment, in the center of which is a distinct, short, stubby spine. Pile of first segment abundant, long and fine ventrally, shorter dorsally, and with 2 or 3 long, stout ventrolateral bristles; second segment with a few short setae.

Head, anterior aspect: Face below antenna a little more than a third the head width and divergent below. Subepistomal area small, nearly horizontal, deeply concave and bare. Genofacial grooves deep but wide. Face densely pubescent and densely long, fine pilose, without bristles though the ventral pile may become somewhat stouter and the pile on the lower third of the face is a little longer and is continued down the upper half of the subepistomal margins to the eye corners. The front is short, micropubescent, slightly divergent with numerous long, fine bristly hairs laterally. Vertex deeply excavated with obliquely sloping sides, the ocellarium large, wide, comparatively low and bearing across the middle 6 to 8 pairs of long, slender bristles or bristly hairs. Anterior eye facets strongly enlarged.

Thorax: The thorax is appressed micropubescent on the whole pleuron, but only anteriorly and laterally on the mesonotum, which is otherwise shining. Pile of mesonotum dense, short, curled, appressed and setate. There is a narrow apilose band down the middle of the somewhat wrinkled, granulate surface. Dorsocentral and acrostical bristles not differentiated. Over the whole posterior fourth of the mesonotum occasional hairs stand out as a little longer, but irregularly. The following complement of short, moderately stout bristles present laterally: 2 notopleural, 2 supraalar, 2 postalar, and no scutellar. Scutellum thick and convex, the surface granulate with short, curled, setae, the base with a deep crease. Propleuron with abundant, long, fine pile, including the collar, which is low, short, and inconspicuous; bristles absent. The upper posterior and anterior sternopleuron, posterior half of the mesopleuron, upper half of the pteropleuron, and anterior half of the posthypopleuron are all with numerous, long, fine hairs. Metapleuron strongly protuberant, with a wide band of still more numerous, longer, stiff hairs. Lateral metanotal slopes bullose and micropubescent only. Lateral slopes of metasternum and ventral metasternum with abundant, long, fine pile; postmetacoxal area membranous; tegula micropubescent.

Legs: All the femora stout without being in the least swollen. Middle femur slightly more slender than the remaining pairs. The hind tibia is distinctly swollen distally, beginning at the base and at the apex nearly twice as wide as the base. Ventral surface of hind femur and tibia with a very dense fringe of fine, moderately long, erect pile; brush of setae absent medially, except at the extreme apex. Dorsal pile of all the femora dense, fine, short, appressed and setate. The following complement of bristles present: 8 or 9 ventrolateral bristles on the hind femur, all short and rather weak, 2 of these on the outer fourth distinctly stouter than the remainder; there is a short, stout dorsolateral at the apical fifth and a shorter, weaker bristle dorsomedially near the apex; hind tibia with 4 or 5 fine, short, dorsomedial, 4 stout dorsolateral, 2 longer, stout lateral, of which one is near the base and one near the apex, and 5 or 6 longer ventrolateral bristles. Apex with a dorsomedial, 3 or 4 weak medial, 1 dorsolateral, 1 long lateral, 1 ventrolateral with 1 or 2 short bristles above it, and 4 ventral bristles. Middle femur with 1 long slender anterior bristle just beyond the middle and some long, slender, ventral hairs; its tibia has 4 long, slender, anteroventral, 1 single, long anterior bristle at the basal third, 6 or 7 anterodorsal, a like number of posterodorsal, 6 or 7 short posterior, and 4 long posteroventral bristles. Anterior femur with numerous, moderately long, stiff hairs ventrally and somewhat shorter hairs posteriorly; its tibia has 6 or 7 short anterodorsal, 5 or 6 similar posterodorsal, 6 slender posterior bristly hairs, and 4 long slender posteroventral bristles; apex without spine. Anterior basitarsus short and stout, not as long as the 2 succeeding segments; tarsi with stout, sharp slaws, well developed pulvilli, and a long blade-like empodium.

Wings: The wings are broad, marginal cell widely open; anterior branch of third vein strongly sigmoid, arising at a right angle and with second submarginal cell unusually swollen at base. First and fourth posterior cells closed with a long stalk; anal cell closed and stalked; middle end vein of the second basal cell long; the anterior crossvein enters the discal cell well before the middle; the alula is large, the ambient vein is absent, the costa ending well before the apex of the wing.

Abdomen: The abdomen is robust, distinctly wider than thorax. The tergites are flattened across the middles and six tergites are present in the female, the seventh and eighth each extremely short, concealed in dorsal view but very narrowly protruding laterally; the sixth tergite is three-fourths as long as the fifth; the seventh and eighth each about one-seventh as long as the sixth. Lateral margins of the tergites slightly convex; posterior incisures notched. Pile of abdomen abundant, but exceptionally short and fine and appressed, the surface granulate but not punctate. In the type of genus there are transverse pollinose spots, 4 on each tergite. Sides of the first tergite with quite short pile and 5 short bristles. Second tergite with 4 bristles laterally, the third tergite with 3, the fourth and fifth tergites each with 2 short bristles. Female terminalia very short and produced posteriorly as a short, slender, yellow lobe cupped and hollowed beneath. All the sternites with short, abundant pile. Male not seen by author.

Distribution: Palaearctic. *Glyphotriclis ornatus* Schiner (1868), from Gibraltar.

Genus *Scytomedes* Hermann (ex Loew)

FIGURES 42, 440, 899, 908, 1863

Scytomedes Loew *in* Stein, Stettiner Ent. Zeitung, vol. 42, p. 490, 1881. *Nomen nudum.*

Scytomedes Hermann, Zool. Jahrb., vol. 43, p. 187, 1920. Type of genus: *Asilus haemorrhoidalis Fabricius.* 1794, designated by Roeder, 1882, as *Scytomedes menstruus* Roeder (ex Loew) in Roeder, 1882, as a cabinet name in the Loew collection. Validated by Hermann, 1920.

Small, robust asilids related to *Triclis* Loew but distinguished by a short face, by a long, slender antenna, the segregation of the face pile into short hairs dorsally and bristles ventrally, and the quite short, curled wiry and appressed mesonotal pile. Length 11 mm.

Head, lateral aspect: The head is not extended below the eye. The face is rather short, nearly straight in profile, a little more conspicuous ventrally, due to the posterior recession of the eye. Eye of moderate length, strongly and evenly convex anteriorly, gently convex behind. The occiput is short but slightly more developed below, due to a short, moderate, anteroventral recession of the eye; occiput obliterated dorsally. The pile of the occiput is rather scanty, moderately long and stiff ventrally, with only a few hairs dorsally along the eye margins; on the upper half are 12 pairs of rather stout bristles, the middle ones proclinate. Proboscis short, distinctly compressed towards the apex, but only slightly over the middle portion, the base from the ventral aspect distinctly swollen subbasally. The apex is very bluntly rounded, a low dorsal ridge present in the middle; the apex bears a few stiff hairs, the basal half of the ventral surface has numerous, long, fine hairs that continue around the lower lateral half of the proboscis; the proboscis is held nearly straight forward. Palpus small, slender, cylindrical, of two segments, the first segment short and excavated, the second not porate, bearing a few apical bristles. The antenna is attached at the dorsal fourth of the head; it is distinctly elongate and slender, and all the segments are subcylindrical or at most slightly compressed. The first segment is long, at least twice as long as the second segment. The third segment (microsegment excluded) is 1½ times as long as the first segment, and bears a quite short annulate or disclike microsegment. To this short microsegment is attached a much longer, apically rounded, second microsegment, equally robust but slightly tapered apically, which carries a dorsal, elongate, spoonlike depression in which is a concealed spine. First segment with numerous, suberect, bristly setae dorsally and long bristles ventrally, both slender and stout. Second segment with only scanty short setae.

Head, anterior aspect: The width of the head is about 1½ times the height. The face below the antenna is nearly half the head width and the sides are nearly parallel, and actually slightly narrowed in the middle. The front is widened at the vertex. Subepistomal area of moderate size, but only slightly oblique, concave and mostly shining. The face is pubescent with a subocular, vertical stripe of long, appressed, coarse pubescence;

the upper three-fourths of the face has short, subappressed pile, the ventral fourth slightly convex and bearing a triangular patch of numerous, moderately long, stout, curved, pale bristles, which extend down the sides of the subepistoma only a short distance. Genofacial creases deep; the antenna rest on a very low elevation which is shared by the upper face. The front is longitudinally concave on either side, bare in the middle, with numerous, long, fine, bristly hairs laterally along the eye margin; it is distinctly wider than the face and not or but slightly convergent dorsally. Vertex rather deeply excavated; the ocellarium is large and bears 3 or 4 pairs of short, slender, pale bristly hairs. Anterior eye facets strongly enlarged.

Thorax: Mesonotum without pollen or pubescence, except above the wing. Pleuron micropubescent, the peteropleuron and mesopleuron anteriorly bare. The pile of the mesonotum is dense, but quite short, curled, appressed and bristly setate. Differentiated acrostical and dorsocentral bristles absent. Humerus with some slightly longer suberect pile. In the type of genus the following complement of moderately long and stout bristles is present: 2 notopleural, 2 long and 2 short supraalar bristles; postalar and scutellar margin with only fine short hairs; scutellum thick, convex, shining, the surface with numerous, short, bristly hairs. Propleuron dorsally, laterally and ventrally with long pile, fine below, stiff above, and 2 or 3 stiff bristly hairs. Upper posterior sternopleuron, the posterior half of the mesopleuron with considerable short pile; the mesopleuron has a distinct though slender bristle. Pteropleuron and posthypopleuron with a few, long, fine hairs, amounting to 12 on the latter. Metapleuron with a vertical band of numerous, long, slender, bristly hairs; metanotal slopes micropubescent only. Lateral metasternum and the chitinized but isolated ventral metasternum rather densely long pilose. Postmetacoxal area membranous. Tegula pubescent only.

Legs: All the femora are stout and swollen, the hind femur a little more so than the others, and the thickening both dorsal and ventral. Pile of the femora dense, appressed, fine and setate; ventral surface of hind femur and of its tibia with dense, long, fine, erect pile; the hind tibia quite thickened, narrowed only at the immediate base and without ventral brush of setae. The following complement of bristles present: on the hind femur 1 strong lateral bristle at the outer sixth, a weak dorsal bristle at the outer fourth, its tibia with 2 slender dorsomedial, but 4 quite stout dorsolateral, and 6 similar ventrolateral, the apex with 2 medial, 1 dorsomedial, 1 dorsolateral, 2 lateral, and 6 ventral bristles; hind basitarsus stout and short, but as long as the 2 succeeding segments; middle femur with a dorsolateral bristle at the outer fifth, and a ventrolateral bristle; its tibia with a single anterior bristle near the base, 3 anteroventral on the outer half, 2 short and 2 long anterodorsal, 4 posterodorsal, 4 long posteroventral bristles; anterior femur with only fine, short setae; its tibia with an anterior brush of setae beginning at the base, 2 or 3 minute, anterodorsal bristles, 4 slightly longer posterodorsal and 4 long, basally stout, attenuate, posteroventral bristles; apex without spine. All the tarsi short and stout. All tarsi end in slender, sharp claws, in long pulvilli, and in a long empodium strongly swollen at the base.

Wings: Marginal cell widely open but the cell is wide distally, its apex strongly and rather abruptly arched, the vein ending at a right angle. Anterior branch of third vein strongly sigmoid and the second submarginal cell strongly swollen at base. First and fourth posterior cells closed and stalked. Anterior crossvein enters the discal cell at the basal fifth; middle end vein of the second basal cell rather long, anal cell closed and stalked, alula moderately wide, the ambient vein ends at the anal cell.

Abdomen: The abdomen is robust, nearly as wide as the thorax, punctate, rather flatrened over the middles of the basal tergites, and with six tergites in the male, all of nearly equal length, including the last one. The pile of the abdomen is abundant, but rather short and fine and largely appressed. Sides of the first tergite with a few long, fine hairs and 4 or 5 long, stout bristles; remaining tergites without bristles. Male terminalia rotate one-half, the epandrium deeply notched apically but rather large and bulbous or swollen.

Distribution: Palaearctic: *Scytomedes haemorrhoidalis* Fabricius (1794) [=*menstruus* Roeder (ex Loew) (1882), *nubeculipennis* A. Costa (1863)]

Genus *Macahyba* Carrera

Figures 445, 876, 885

Macahyba Carrera, Papéis Avulsos Dep. Zool., São Paulo, vol. 8, no. 17, p. 203, 1947. Type of genus: *Macahyba nordestina* Carrera, 1947, by original designation.

Medium size flies of greatly reduced pile and with a few stout bristles. Distinguished by the open marginal cell and the recurrent second vein, the exceptionally strongly arched base of the second submarginal cell, the widely open first posterior cell and the pair of stout, long scutellar bristles. Length 15 mm.

Head, lateral aspect: The head is of medium length. The face is straight in profile, very short on the upper part, somewhat more conspicuous below due to the posterior recession of the eye. Cheeks as prominent as the face. The eye is slightly longer on the dorsal half, but on its posterior portion equally developed above and below, so that its posterior profile is nearly plane throughout the middle. The occiput is moderately thick, both above and below, with shaggy, long, ventral pile and a submarginal, deeply placed row of stout, conspicuous, spinous bristles beginning at the middle of the occiput and continued well behind the vertex; there are 9 on each side. The proboscis is short, extended scarcely or very little beyond the face, and robust, with the apex slightly depressed dorsoventrally and the pile reduced to a few long hairs below at the base and a few short hairs at the apex; medial carina low. Palpus clearly of two segments, the first segment small, short, the second considerably longer, spindlelike and with an apical pore. Its pile is reduced to a few dorsolateral and ventral bristly hairs. The antenna is attached at the upper fourth of the head. The first two segments are subequal in length and at least twice as long as wide. The first segment bears near the apex below a pair of long and exceptionally stout bristles. Both segments with stiff, bristly hairs; third segment wanting.

Head, anterior aspect: The head of only moderate width, the face below antenna is a little more than one-fourth the width of the head, with parallel sides, uniformly pubescent with a number of scattered bristly hairs over the whole length. On the epistomal margin are 3 pairs of straight, stout, long bristles, and above them an additional medial pair. Subepistomal area extensive, oblique and nearly plane; its lateral margins are gently rounded and merging into the cheek. The front is very slightly widened above the antenna; the vertex is slightly convergent but almost as wide as the face. The front is short and pollinose, the ocellar protuberance rather high with vertical sides and bearing 3 pairs of divergent bristly hairs; sides of front with 3 long and 3 or 4 shorter, bristly hairs. Anterior eye facets at most very slightly enlarged.

Thorax: The height of thorax is moderate, uniformly convex anteriorly and posteriorly and highest in the middle. The mesonotum is densely appressed, microsetate, with pile undifferentiated. The thorax bears the following complement of bristles: 4 pairs of very weak, slender pronotal bristles and on the mesonotum stout, long bristles; 1 posthumeral, 1 notopleural, 1 supraalar, 1 postalar, a scutellar pair, and no postdorsocentral bristles. On the metapleuron are 6 long, distally curved, slender bristles and some fine pile. On the upper and posterior mesopleuron are a few scanty hairs, but there is longer and somewhat more abundant pile on the propleuron. Mesonotum and the whole of the pleuron thinly pollinose; metanotal callosity bullose, micropubescent only; lateral slopes of the metasternum pilose, ventral metasternum broadly chitinized and bare; postmetacoxal area membranous. Prosternum not dissociated.

Legs: The femora are stout and only the hind femur is very little swollen distally. The hind femur is elongate and together with the remainder of legs densely appressed setate pilose. Bristles on the hind femur are conspicuous and strong; there is a single ventrolateral bristle at the apical third, a pair of dorsal bristles at the apical fifth, and a dorsomedial bristle at the basal third, but long pile or bristly pile is quite absent. Middle femur with 1 anterior bristle at the outer third and 1 posterodorsal near the apex. Anterior femur with only 1 bristle posterodorsally near the apex. All the tibiae are stout, and on the hind tibia are 3 long, stout, dorsolateral, 4 ventrolateral bristles, and at the apex only 5 stout bristles, of which 2 are ventral, 1 lateral, the others dorsolateral and dorsomedial. On the middle and anterior tibiae bristles are more numerous. There are 3 long anterodorsal, 3 short posterodorsal, 4 or 5 posteroventral, and 4 anteroventral bristles on the middle pair and approximately the same numbers on the anterior pair. Tarsi rather short and robust, the last tarsal segment however is long and with anterior and posterior fringe of 8 or 9 short spinous setae. The tarsal bristles are quite long and stout. Claws exceptionally long, only slightly curved, sharp, the pulvilli reduced to mere stubs. The empodium is about a fourth as long as the claw.

Wings: The wings are broad, the marginal cell is comparatively widely open, but the second vein is distinctly recurrent, and the base of the second submarginal cell is very strongly arched. The first posterior cell is widely open, the fourth is closed with a long stalk and its end vein is offset from the end of the discal cell by the very short lower end vein of the discal cell. Anal cell closed with a short stalk; middle end vein of the second basal cell long. Alula large; ambient vein complete.

Abdomen: The abdomen is robust, at least as wide as the mesonotum, and rather elongate; the sides are almost parallel to the end of the fifth segment. The first tergite is nearly as long as the second and there is very little difference in length among the first six segments. Eight tergites are present in the female, the seventh and eighth nearly equal and about one-fourth as long as the sixth. Abdomen densely appressed setate, with scanty pollen, so that the segments are mostly shining. There are stout, lateral, conspicuous, tergal bristles present, 2 on each side of the first 5 tergites, none beyond. Female terminalia short and inconspicuous, without spines, the eighth sternite with a short small notch. I have seen no males.

Distribution: Neotropical: *Macahyba nordestina* Carrera (1947); *scalaris* Hermann (1908).

Genus *Psilocurus* Loew

FIGURES 57, 435, 565, 914, 923, 1667, 1671, 1928, 1957

Psilocurus Loew, Berliner Ent. Zeitschr., vol. 18, p. 370, 1874. Type of genus: *Psilocurus nudiusculus* Loew, 1874, by monotypy.

Orthoneuromyia Williston, Kansas Univ. Quart., vol. 2, p. 67, 1893. Type of genus: *Orthoneuromyia modesta* Williston, 1893, by monotypy.

Small or medium size flies, characterized by the dense, quite short, setate pile and reduced bristles, together with the open marginal cell, open first posterior cell and the entirely nonrecurrent second vein. From *Psilocurus* the related genus *Macahyba* Carrera is separated by the straight face, without a gibbosity, the stout and emphasized oral bristles, the distinctly recurrent second vein and the greatly reduced pulvilli. Length 7 to 12 mm.

Head, lateral aspect: The head is of medium length, the face short, on the upper half with a low gibbosity, moderate in extent. The eye is strongly convex anteriorly, gently convex behind and recessive on the lower fourth. The occiput very short in profile, a little more prominent below, pollinose with short coarse pile ventrally and a conspicuous, transverse, dorsal row of stout, long, sharp, spinous bristles; there are 6 of these bristles on each side above and 4 to 6 laterally. The proboscis is slender, directed forward, extending a short distance beyond the face; in some species the base is noticeably swollen and with a few scattered hairs ventrally on the basal half; apical pile fine, restricted to the tip, and extending outward. Palpus small, composed of two segments, the basal segment minute, the terminal segment longer, slender, attenuate, nearly bare, porate, with only a few scattered hairs arising from the ventral side; it is rather similar in form to the palpus of the Stichopogonini. The antenna is attached shortly above the middle of the head and rather short; in the type of genus it is distinctly shorter than the head; and as long as the head in other species. The first two segments are nearly subequal and together are as long as the oval, slightly flattened third segment; apex of third segment with a minute dorsal spine and without microsegment. Middle base of the first segment with a single long, quite stout, spinous bristle.

Head, anterior aspect: The head is of moderate width, the face one-fifth of head width and with parallel sides. The face is densely pollinose, with a few short, scattered hairs over the middle. The mystax confined to the ventral elevation, where moderately stout bristles extend obliquely forward and downward beyond the proboscis and arise from a more or less triangular patch. Cheeks absent. Subepistomal area small, concave, bare and nearly horizontal. The front is distinctly but moderately divergent and the vertex of about the same width; both pollinose, the former has a few minute hairs on the sides and on each of the midfrontal ridges. The ocellar protuberance of moderate height with slanting sides and with a few exceptionally minute hairs.

Thorax: The thorax is elongate, the mesonotum low, uniformly convex and the whole thorax uniformly pollinose. The mesonotal pile is dense, minute, flat appressed, setate and undifferentiated. The thoracic complement of bristles consists of stout mesonotal bristles: 1 notopleural, 1 supraalar, 1 postalar, and a scutellar pair. Propleuron with only fine pile. Metapleuron with a double row of very slender bristles or bristly hairs, on one species a single row of 4 rather stout bristles. Upper mesopleuron and the upper corner of the sternopleuron and the posterior hypopleuron with a patch of fine pile. Metanotal callosity micropubescent only; lateral slopes of the metasternus with pile. The ventral metasternum broadly chitinized and pilose. Postmetacoxal area membranous. Prosternum not or at most slightly dissociated posterolaterally.

Legs: All the femora are stout, the hind pair a little swollen distally, the legs everywhere densely and minutely appressed setate and shining, the few bristles moderately stout. The hind femur has a transverse dorsal pair of bristles on the outer fifth and there are 3 others which are smaller and set transversely at the apex; ventral surface with only minute pile. Hind tibia with a single dorsolateral at the outer fourth, 2 ventrolateral at the middle and outer fourth, its apex with 5 bristles. Middle femur with 2 bristles dorsally at the apex, in some species with only fine, longer hairs. Middle tibia with 3 dorsal, 1 ventral, 1 anteroventral, and 1 anterior bristle. Anterior femur with 3 bristles at the apex, or sometimes only 1. The anterior tibia with 2 strong posteroventral bristles and 1 or 2 minute dorsal bristles. Claws sharp, the hind pair strongly curved, the pulvilli long, the empodium long and slender.

Wings: The marginal cell open, second vein not at all recurrent; first posterior cell widely open, fourth posterior cell and the anal cell closed and with stalk; the second basal cell ends in three veins and the ambient vein is complete.

Abdomen: The abdomen is robust, as wide as the thorax basally, sometimes with the sides nearly parallel, or very slightly tapered. The pile is dense, minute, quite flat appressed. The abdominal bristles are stout, 2 to 3 on the sides of the first tergite, 2 laterally on the second and third tergites and at least 1 on the remaining tergites, with strong bristly hairs on the last tergite. Male with 6 tergites, the last being large with curved sides. Female with 6 tergites and a linear trace of a seventh. Male terminalia rotate one-half with a characteristically arched, bowl-shaped protuberance from the large epandrium, which is ventral in position. Gonopod small, short, with slender apical process. Hypandrium very short or absent. Genital cavity exposed but deeply recessed in depth. The whole structure is reminiscent of *Hoplistomerus* Macquart. Female terminalia short and inconspicuous, without spines and recessed beneath the last tergites.

These flies frequent low vegetation where the sunlight falls upon it. They are often associated with desert rosette plants but in such situations they hide from the direct rays of the sun beneath these plants. Also they are found on the edges of woods in south temperate, forested country.

Distribution: Nearctic: *Psilocurus birdi* Curran (1931); *modestus* Williston (1893); *nudiusculus* Loew (1874); *puellus* Bromley (1934); *reinhardi* Bromley (1951).

Neotropical: *Psilocurus camposi* Curran (1931); *caudatus* Williston (1901).

Martinia, new genus

Type of genus: *Martinia moloch*, new species.

Related to *Psilocurus* Loew, but distinguished from this genus by the presence of a distinct, short, conical microsegment on the third segment of the antenna. The marginal cell is closed and stalked; the second vein is recurrent. The quite long, slender, ribbonlike pulvillus separates it from *Macahyba* Carrera. Length 8–11 mm.

Head, lateral aspect: The occiput is prominent below, less so in the middle and not at all above. The face is very short and plane with the eye beneath the antenna but since it is almost straight in profile it is moderately prominent below as the eye margin recedes backward. Above the epistoma it is a little less convex than *Psilocurus*. Proboscis rather slender, bluntly rounded at the apex, much wider and cylindrical on the basal two-fifths. It is extended forward well beyond the face but not to the end of the mystax. Palpus of two segments, the basal segment small, the second segment a little swollen in the middle with attenuate apex and bearing fine, bristly hairs. The antenna is inserted a little above the middle of the head, very similar in general proportions to those of *Psilocurus*, which have a short, broad, ovate third segment. The conical microsegment is as long as wide, or a little longer and bears a minute, short, apical bristle. First antennal segment with 2 long, stout and 1 short stout ventral bristle; second segment with a rather long, slender, dorsal bristle and 1 additional shorter seta. Upper occiput with 4 long, rather weak bristles and some equally long, stiff hairs.

Head, anterior aspect: Face below the antenna a fourth of head width and with nearly parallel sides; the surface is densely micropubescent; the upper half bears 20 to 30 suberect hairs as long or very little longer than the first antennal segment. Lower third of face in the middle with a rather compact cluster of 12 moderately stout, pale bristles which extend straight forward, are slightly curved, and are not quite as long as the three antennal segments.

Thorax: The mesonotum is opaque and pollinose, with moderately abundant, flat appressed setae and without differentiated acrostical or dorsocentral pile or bristles, except for 1 pair of long, stout, conspicuous, dorsocentral bristles placed widely apart a short distance from the scutellum. These bristles are lacking in *Macahyba*. The notopleuron has 2 stout, long bristles; the supraalar region has 1 longer, stout bristle; the postalar callosity has a still longer, stout bristle; and the margin of the scutellum has one pair of long, stout bristles. Humerus with some short, suberect, bristly hairs. Pleuron everywhere pollinose with quite fine, scattered hairs. Disc of scutellum with a few scattered, appressed setae.

Legs: The femora are all moderately long and rather slender, the hind pair especially so. The hind femur is slightly widened on the outer half, the legs are everywhere thinly pollinose and the pile consists of fine, appressed setae. Hind femur with 2 or 3 quite short bristles ventrally on the basal half, 1 short, weak bristle dorsolaterally near the apex, 2 others dorsomedially close to the apex. Ventrally there is no pile longer than the minute, short setae present elsewhere on this femur. Hind tibia with 3 short, slender, lateral bristles, 4 short, dorsal bristles and 2 posterodorsal bristles, also short. Bristles of the apex unusually long, 7 in number. Tarsal bristles likewise quite long. Hind basitarsus as long as the next three segments, the third and fourth segments beadlike, fifth segment rather long and with stout, short, lateral bristles similar to *Macahyba* Carrera. Middle and anterior femora each with 2 widely spaced, long, slender bristles ventrally on the basal half, 1 short, anterodorsal bristle near the apex, another posterodorsal closer to the apex. Middle tibia with 4 anterodorsal and 4 posterodorsal bristles, these are moderately long and stout and the basal elements are shorter; 6 posteroventral bristles; 3 long, ventral; and 2 long, anteroventral bristles. On the anterior tibia the anterodorsal and posterodorsal bristle rows contain 5 short bristles each. There are 5 quite short and rather stout posterior bristles and 3 quite long, stout posteroventral and 3 long, slender ventral bristles. Claws long, slender, gently curved from the base, very sharp, the pulvilli reaching nearly to the apex of the claw but quite slender; empodium long.

Wings: The wings are hyaline, marginal cell closed with a short stalk, the end of the cell blunt, wide, the second vein joins the first vein at a rectangle. First posterior cell widely open, fourth posterior cell closed and stalked; anterior intercalary vein straight and closes the discal cell rectangularly; the medial crossvein of nearly the same length and pulled backward. Posterior crossvein long; that part of the cubital vein between the fourth posterior cell and the second basal cell quite long. Anal cell closed and stalked, alula prominent. Ambient vein present, except on alula.

Abdomen: The abdomen with parallel sides and as wide as the mesonotum; pile appressed and setate. First five tergites with prominent, lateral bristles in vertical rows just past the middle of the segment. Each tergite with 3 bristles on each side. Terminalia large and rotate 90°. Epandrium large, rather bowl-like with transverse apex to which is fused the long, conical proctiger, which appears to be in two parts and has the apex acute. Gonopods tightly adjacent to the epandrium, the apex oblique and bearing a row of 5 quite stout, spikelike, pale bristles. Ventral cavity largely open, the aedeagus with a single tube enclosed by claspers and pseudoclaspers.

Distribution: Neotropical: *Martinia moloch*, new species.

This genus is named in honor of Dr. Charles H. Martin.

Martinia moloch, new species

Characterized by the rather extensive greyish yellow pollen on thorax and posterior part of tergites, and the pale yellow color on the basal half of all the femora. Length 8–11 mm.

Male. Head: The head is black, the micropubescence and pollen greyish white or very faintly yellowish at most. The bristles in the center of the face are distinctly yellow, the pile above nearly white. Occipital pile distinctly white but the dorsal bristles yellow. Antenna black, with the first two segments sometimes dark brown; the base of the third segment may be also dark brown. Spikelike ventral bristles of the first segment yellow; dorsal bristles of the second segment black. Proboscis quite black, palpus reddish brown.

Thorax: The mesonotum is opaque, with a pair of narrowly separated, brownish black, pollinose stripes down the middle of the mesonotum and with a wider, similarly colored stripe on the outer third of the mesonotum which begins some distance behind the humerus and becomes narrowed and attenuate opposite the postalar callosity. This outer stripe is also narrowly interrupted by pale brownish yellow pollen along the suture and the humerus, and a posteromedial triangle of similar pale pollen extends in front of the lateral, blackish stripe. The sides of the mesonotum are also widely pale brownish yellow pollinose as well as the mesopleuron and upper sternopleuron. Elsewhere on the pleuron the pollen is distinctly greyish white and quite dense. Pile and the numerous, long but quite slender, bristly hairs or slender bristles of the metapleuron pale yellow. Bristles of the mesonotum and scutellum distinctly reddish yellow, except for the single pair of black posterior dorsocentral bristles. Mesonotal setae black broadly over the middle of the mesonotum, becoming yellow laterally and across the anterior margin of the mesonotum. Scutellar setae black. Halteres large and brownish yellow.

Legs: The basal half of all the femora pale yellow, the color obliquely but not sharply delimited and the black of the outer portion extends dorsally a little closer to the base on the anterior pair, and both black and yellow color is densely overlaid by white pollen. Basal fourth or less of middle and hind tibiae and basal three-fourths of anterior tibia also light yellow. All of the tarsi quite dark brown. Pile of the tibiae and tarsi quite dense, appressed, setate and yellow. Claws black with only the extreme base dark brown.

Wings: The wings are hyaline; veins light brown.

Abdomen: The abdomen is brownish black, more nearly black on the basal half of the second tergite, also nearly black on the basal two-thirds of each tergite from the third to the sixth and also on the basal half of the first tergite, in the middle only. These black areas are only found across the center of the basal part of the tergites, the side margins become extensively pale greyish yellow pollinose. Posterior margins of the third and remaining tergites rather widely yellowish brown in underlying ground color. This color is less extensive on the first two tergites. In the females the seventh and eighth tergites are visible but are short and entirely creamy yellow; ultimate segment is black. Most of the setae on the black areas are brownish black and flat appressed. Setae of the posterior margins a little longer, appressed and yellow. Lateral pile and bristles pale yellow, including those of the terminalia. Male terminalia dark brown with pale pollen.

Type: Male, Camamina, Bolivia, July 1921–22, W. M. Mann; allotype, female, and 3 male and 12 female paratypes, all with the same data. Types in the U.S. National Museum; alternate paratypes in the collection of the author.

Genus *Perasis* Hermann

FIGURES 86, 442, 877, 886, 1666, 1674, 1998, 1999

Perasis Hermann, Berliner Ent. Zeitschr., vol. 50, p. 37, 1905. Type of genus: *Perasis sareptana* Hermann, 1905, by monotypy.

These are medium size flies of greatly reduced pile and characterized further by the open marginal cell, nonrecurrent second vein, the closed first posterior cell, crossing of the upper and lower end veins of the second basal cell, the copious coarse pile of the face and the prominent, spoon-shaped, medially cleft microsegment of the antenna. Scutellum without bristles. Length 12 mm.

Head, lateral aspect: The head is of medium length, the face distinct in profile, though not prominent. It has a low elevation beginning at the antenna and continuing to near the epistoma, where it is rounded and retreating. The eye is distinctly longer below, strongly convex on its ventral profile, and gently convex anteriorly. The occiput towards the middle of the head grows thick and tumid on the ventral half but is excavated and reduced on the upper half; it is pollinose, with slender bristles beginning at the lower third, where there are 2; at the middle there begins a row which contains 12 increasingly stout bristles, ending near the middle of the postvertex. The proboscis is rather small but strongly swollen at the base, cylindrical, blunt at the apex, which carries a few minute hairs chiefly directed downward; there are also a few hairs below at the base. The proboscis directed obliquely downward, or if forward it does not extend beyond the face. Palpus quite slender, the basal segment small, the end segment cylindrical, longer, with 2 conspicuous, long, slender bristles at the apex and a few other hairs ventrally. The antenna is attached at the upper third of the head and nearly as long as the head; antenna comparatively slender. The first segment is longer than the second, the first two segments as long as the third. The third segment is very little wider or higher than the basal segments, stout even at the base and slightly narrowed at the apex; it bears an oblique, robust microsegment which is longer below, deeply notched in the middle and carries at the bottom of the notch a spine.

Head, anterior aspect: The face is one-fourth the head width, slightly wider below, uniformly pubescent and with abundant, obliquely directed, coarse, bristly pile over nearly the whole surface. This pile becomes a little longer along the epistomal margin and contains medially above the margin a patch of 7 or 8 weak bristles. Anterior eye facets greatly enlarged. Front not at all widened; it is not wider than the upper face including the vertex; the vertex is deeply excavated, with a high ocellar protuberance with slanting sides, 2 pairs of slender, divergent bristles, and 2 or 3 additional pairs, all located between the ocelli. The front is short and together with the vertex pollinose; the orbital margin of the front bears a row of coarse hairs; the anterior ocellus greatly enlarged.

Thorax: The thorax is elongate and low, uniformly convex, densely appressed, setate, pile undifferentiated and feebly shining; it bears pollen laterally and over the whole pleuron. Mesontal complement of bristles consists of 3 notopleuron, 2 to 4 supraalar, and no postalar or scutellar bristles. Scutellum thick, convex, with fine setae on the disc and rim. There is some scanty appressed pile on the upper and posterior half of the mesopleuron; propleuron pilose, the pronotal collar with fine pile only; metapleuron with a broad band of long, stiff pile; hypopleuron without pile but with a patch of pubescence. Upper pteropleuron with some fine short pile; lateral slopes of the metasternum pilose; metanotal callosity micropubescent only; ventral metasternum chitinized with a few hairs; postmetacoxal area membranous; prosternum not dissociated.

Legs: The femora stout, the hind pair a little dilated distally; the legs everywhere covered with fine, appressed setae; the bristles are quite short but stout. On the hind femora are 6 to 8 ventrolateral bristles, a few long bristly hairs ventrally at the base, and 2 dorsomedial bristles near the apex. Middle femur with a stout bristle posterodorsally at apex, another anterodorsally, yet another anteroventrally. Anterior femur with on each side a small dorsal bristle near the apex. Hind tibia with 3 dorsal bristles and 3 ventrolateral bristles, its apex with 6 large and 2 minute bristles. Anterior and middle tibia small, rather short and slender, with 3 or 4 small, posterodorsal, 3 anterodorsal, and, on the middle tibia, 2 posteroventral bristles. Claws sharp, the posterior pair more strongly curved, the pulvilli long, the empodium long and slender, a little swollen at the base.

Wings: The marginal cell is widely open, the second vein not recurrent; base of second submarginal cell with a low arch. The first posterior and fourth posterior and anal cells closed with a short stalk. The upper and lower end veins of the second basal cell crossed. The alula is large, the anterior crossvein rectangular, entering the discal cell at the middle; the lower end vein of the discal cell is long and the ambient vein ends at the anal cell.

Abdomen: The abdomen is robust and rather flattened, as wide as the thorax, with parallel sides to the end of the fifth segment and with dense, minute, flat appressed pile. The first tergite has 3 or 4 bristles laterally, 1 or 2 on the sides of the second to the fourth tergites and 1 laterally on the sides of the fifth and sixth tergites. Males with 6 tergites; females with 8, the seventh and eighth both quite short and each about one-fourth the length of the sixth. Male terminalia rotate one-fourth, open below. The epandrium is not large, is broad at base, a little convex, and with a deeply rounded, medial sulcus, each half thin and flat, curved laterally downward. Gonopod broad, short, obtuse and convex. Hypandrium also short, leaving the genital cavity widely open. Female terminalia short, protruding only a little beyond the eighth tergite.

Distribution: Palaearctic: *Perasis maurus* Macquart (1849); *ocellatus* Becker (1923); *postica* Becker (1907); *sareptana* Hermann (1905); *transcaspica* Paramonov (1930); *violacea* Becker (1907).

Genus *Udenopogon* Becker

Figures 2507, 2517, 2523

Udenopogon Becker, in Becker and Stein, Ann. Mus. Zool. Acad. Imp. Sci. St. Pétersbourg, vol. 17, p. 520, 1913. Type of genus: *Udenopogon inscriptus* Becker, 1913, by monotypy.

The following is Becker's description in translation:

The head flat, large, and seen from the front almost twice as broad as high; much broader than the thorax. Face in profile not protruded; front and face equally broad, hardly broader than one half eye. The mystax is limited to the lowest border (*aussersten Mundrand*) of the mouth and is very delicate; on the lower face, uniformly distributed, there are a few delicate hairs. On the top of the head the deep, saddle-like front is wholly bare. The antennae have almost the form of *Habropogon;* the third antennal segment is a little broadened, as long as the first and second segments together, with a short, cone-like style that has a quite indefinite, obscure basal joint, and which reaches one-third the length of the third segment, without special terminal bristle. Thorax arched, with short, soft, uniformly distributed hair, a little longer behind, the surface gray dusted with blackish pattern. Abdomen with 7 segments exclusive of hypopygium, short, somewhat arched, densely gray pollinose with large, black spots and short pile.

Legs shining reddish yellow, quite slender, except, however, the hind tibiae are strongly curved and on the underside of the hind femora there are some tuberculate bristles. The metatarsi are short but nevertheless twice as long as the middle segment. Wings with closed and stalked fourth posterior cell. Note: This genus reminds one somewhat of *Hoplistomerus* Macquart because of the structure of the hind femur, but also because of the genuine Dasypogonine ending of the second longitudinal vein in the wing margin before the end of the first longitudinal vein and the open first posterior cell, as well as the closed fourth posterior cell, and finally, the structure of the hind tibiae are all substantially differing characteristics of our genus.

Distribution: Palaearctic. *Udenopogon inscriptus* Becker (1913). From Iran.

Genus *Hoplistomerus* Macquart

Figures 87, 437, 880, 889, 1977, 2103, 2106

Hoplistomerus Macquart, Diptères exotiques, vol. 1, pt. 2, p. 59, 1838. Type of genus: *Laphria serripes* Fabricius, 1805, by monotypy.

Hoplistomera Walker, List . . . dipterous insects . . . British Museum, suppl. 3, p. 509, 1855, *lapsus*.

These flies are of medium size. Characterized by the stout, robust abdomen with numerous tergal bristles, the dense, appressed, setate pile of the abdomen and thorax. The hind femur is massively thickened as in *Trichoscelis* Roeder, but has true spinous protuberances and the apex of the marginal cell is bulbous. The veins that end the fourth posterior cell and lower part of the discal cell are aligned in a straight row. Length 15 mm.

Head, lateral aspect: The head is long, its length three-fourths the height. The face is well developed and prominent throughout, its anterior profile plane, the eye only slightly recessive anteriorly below. The occiput is moderately developed in the middle of the head, more prominent below, but obliterated near the vertex. Pile of occiput abundant, long and fine below with only a few scattered hairs medially above and behind the vertex; slender bristles begin at the middle of the head and consist of 9 pairs. The proboscis is unusually large; it is distinctly compressed laterally, the base strongly swollen, the medial ridge high and ending at the outer third. At the apex dorsally there is a tuft of long, stiff hairs and laterally a fringe of 12 to 15 flat, appressed, long, stiff hairs extending backward along the proboscis. Base of proboscis with numerous, moderately long hairs. Palpus clearly of two segments; first hemicylindrical and excavated, second attenuate and microporate, each with a few long, stiff hairs ventrally and laterally. The antenna attached at the upper sixth of head and unusually elongate; the first segment is a little longer than the second, the third is twice as long as the first two combined and is relatively slender but becomes near the middle a little wider than the second segment and on the outer third it is slightly and gently attenuate. At the apex the third segment bears a short, spoon-shaped microsegment, open dorsally and carrying a distinct short spine. First segment with 8 to 10 bristly hairs below, 2 or 3 at apex above; second segment with 4 below and 4 above; third segment with 3 or 4 dorsal setae.

Head, anterior aspect: The face below antenna one-third of head width and with parallel sides, the subepistomal area moderately large and deeply concave but only slightly oblique. The face is micropubescent, sometimes bare in the middle, and with abundant, long, stiff pile over the whole; lower epistomal margin of face with 15 or more pairs of moderately long, weak bristles or stiff hairs. The front extremely short and slightly divergent, the vertex of about the same width; the front bears a number of stiff hairs laterally. Vertex rather shallowly excavated; the ocellar protuberance is low, gently rounded, and bears a pair of stout, moderately long, divergent bristles to which may be added 1 or 2 pairs of fine hairs. Eye facets enlarged centrally.

Thorax: The thorax is micropubescent anteriorly and laterally; most of the pleura pubescent but with a conspicuous, bare, polished spot on the mesosternopleural area. The mesonotal pile is quite abundant, but fine, curled, flat appressed, short and arises from minute punctures. Acrostical and dorsocentral elements undifferentiated from the remaining pile. Humerus with pile and with 4 short, stout bristles; notopleural bristles absent. There is a striking fringe of stout, short, tuberculate bristles above the wing, in all 2 to 4 postalar and no scutellar bristles. Scutellum thick, with abundant, curled, appressed setae. Propleuron with numerous, long, stiff hairs on the lower section and behind, a collar with 5 or 6 pairs of weak bristles. The mesopleuron bears widely scattered groups of long, stiff hairs, more or less appressed. Posthypopleuron with 5 long, slender hairs and 8 to 10 short, curled hairs. Metapleuron with a wide vertical band of some 16 or more long, weak bristles. Metanotal slopes micropubescent only; metasternum laterally with numerous stiff hairs; postmetacoxal area membranous; tegula pubescent only; prosternum not dissociated.

Legs: All the femora are thickened through the middle; the hind femur massively thickened and strongly swollen, especially beyond the middle. All pile is dense and appressed and setate, except for scattered erect hairs ventrally. The hind femur bears short, stout bristles as follows: 3 dorsomedial beyond the middle, 4 dorsal from the middle, 2 middle dorsolateral, and an irregular patch containing 6 lateral bristles beyond the middle; ventrally there may be 3 or more stout, not tuberculate, spinelike projections towards the apex, with shorter ones opposite and medially. Hind tibia bears 6 weak dorsal, 3 or 4 dorsolateral, a strong lateral near the apex, and at the apex 2 dorsal, 1 lateral, 5 medial, and 4 or 5 ventral bristles. Middle femur with a bristle posteriorly at apex, 2 or 3 anteriorly beyond the middle, and a few fine hairs below; its tibia has 8 dorsal, 5 ventral, 3 or 4 posteroventral bristles, all weak and short. Anterior femur with 3 or 4 posterodorsal bristles on the outer half, 4 to 6 short, weak dorsal on the outer half, and smaller weaker bristles basally; its tibia bears 10 short, distinct anterodorsal, 7 or 8 weak dorsal, 4 moderately long ventral bristles and 7 or 8 long, stiff hairs; apex without spine. The tarsi are rather shortened but all the tarsi and especially the basitarsi longer than in *Triclioscelis*. The tarsi end in long, large pulvilli, and unusually stout, bladelike empodium, and claws that are only moderately sharp and are chiefly curved near the apex.

Wings: The wings are relatively broad, with a dilute pattern. Marginal cell closed at or near the margin, bulbous apically; the anterior branch of the third vein makes a rather sharp, nearly rectangular turn below the end of the marginal cell and ends well above the apex of the wing; first and fourth posterior cells closed with a short stalk, anal cell closed; veins ending fourth posterior cell and lower distal cell form nearly a straight line; alula large; the ambient vein ends at or near the end of the anal cell.

Abdomen: The abdomen is robust, with nearly parallel sides and fully as wide as the thorax; it is strongly convex across the tergites. First tergite scarcely swollen; six tergites present in the male and the female. Pile of abdomen quite dense and often obscuring the ground color; the pile is also quite flat appressed, except for a few fine, erect hairs laterally on the first two tergites and sparsely on the sternites. Strong bristles are present laterally on all the tergites: 5 pairs on tergite 1; 5 or more on tergites 2 and 3 and 4; and reduced numbers on the remainder. Male terminalia completely rotate, moderately protuberant and conspicuous. The epandrium consists of a very large, elongate, highly convex, bulbous or basketlike, uncleft plate with transverse, apex; the plate is attached below and lies upon the ventral aspect, leaving the interior structures open and exposed from the dorsal aspect. Gonopod prominent, of considerable depth at base, shorter than the epandrial bowl, and with conspicuous, slender, often hood-tipped processes. Hypandrium, if present, concealed beneath the sixth tergite. Female terminalia low, short, and almost completely concealed in profile by the cuplike sixth tergite. Sides of the ventral plate with 5 or 6 stout bristles; the plate uncleft. The males of *Trisclioscelis* differ from those of *Hoplistomerus* in their quite concealed terminalia.

Distribution: Ethiopian: *Hoplistomerus caliginosa* Wulp (1899); *engeli* Oldroyd (1940); *erythropus* Bezzi (1914); *miniatus* Oldroyd (1940); *nobilis* Loew (1858); *quintillus* Oldroyd (1940; *serripes* Fabricius (1805) [=*maculipennis* Macquart (1834)], *serripes auriventris* Loew (1858); *zelimina* Speiser (1910).

Genus *Trichardis* Hermann

FIGURES 36, 48, 438, 882, 891, 1784, 1787, 1910, 1975

Trichardis Hermann. Zeitschr. syst. Hymen. und Dipt., vol. 6, p. 137, 1906. Type of genus: *Trichardis testacea* Hermann, 1920. Designated by Hermann, 1920, as *Laphria testacea* Macquart, misidentification; see Oldroyd 1940b.

Strobilothrix Becker, Zeitschr. syst. Hymen. und Dipt., vol. 7, pp. 42–42, 1907. Type of genus: *Strobilothrix albipila* Becker, 1907, by monotypy.

Small flies with sparse, short, appressed pile, small, short, obtuse proboscis, swollen hind femur bearing stout, tubercular spines. The marginal cell is closed at the margin, bulbous apically and anterior branch of third vein strongly bent forward on its outer portion. Distinguished from *Triclioscelis* Roeder by the closed marginal cell, the absence of matted, flat appressed pile and by the S-shaped anterior branch of the third vein. From *Perasis* Hermann it is separated by the short, unswollen, blunt proboscis, the large female terminalia, the character of the anterior branch of the third vein and the absence of propleural bristles. Length 10 mm.

Head, lateral aspect: The face is moderately developed, slightly convex, and somewhat more protuberant below. The eyes are moderately recessive below and strongly convex both anteriorly and posteriorly. The occiput is obliterated at the vertex, prominent through the middle and still more extensive below, its pile fine, moderately long, and rather dense on the ventral third but very scanty on the upper portion. Weak bristles are present beginning at the middle of the occiput and consist of 8 to 10 pairs, which are weak. The proboscis is small, short, subcylindrical, at most slightly swollen towards the base, a dorsal ridge almost absent, the apex blunt and obtuse, with considerable long pile apically and below, proboscis directed obliquely forward; ventral half of the base bears a considerable amount of fine, long pile. Palpus of two segments, first longer and more robust, not excavated; the second smaller, shorter, attenuate, not porate, and with the junction of the two segments not immediately apparent. Both segments bear a few scattered, stiff hairs. The antenna is attached at the upper third of the head and relatively short; the first and second segments are nearly equal in length. The first segment is strongly swollen below; the third is laterally compressed, somewhat swollen, especially below in the middle of the segment, and gently tapered at the base and somewhat more abruptly toward the apex. The apex bears a short microsegment which is obliquely truncate dorsally and contains a distinct spine directed obliquely upward. Pile of the first segment composed of 4 stiff setae above, 6 below and in addition a long, very stout bristle. The second segment has 2 long, subapical, slender bristles, a single one below, and other stiff setae.

Head, anterior aspect: Face below antenna one-fourth of head width and slightly divergent below. Subepistomal area short, nearly horizontal and slightly concave. The face has rather dense, matted, stiff pile which is directed downward and covers the entire face. It is pubescent as well and true bristles are absent. The front is slightly divergent but unusually short; along each eye margin there are 4 or 5 weak bristles and a patch of stiff, appressed pile, the whole pubescent. The vertex is moderately excavated, with slanting sides, the ocellar protuberance large, high, with steeply slanting sides and bearing 2 pairs of long, quite stout bristles and several fine, additional, short hairs.

Thorax: The mesonotum is punctate and pubescent only narrowly along the anterior and posterior margins and at the base of the wing; the pleuron is pubescent everywhere except for small, isolated, bare spots. Mesonotal height is one-half of length. The pile of the mesonotum is scanty, curled appressed and setate, a wide, poorly differentiated band of acrostical bristles present; dorsocentral bristles continue to be short nearly as far as the scutellum, where there is on either side a patch of rather longer, appressed pile. Humerus with scattered pile and 2 or 3 bristles. Lateral margins with short but quite stout bristles as follows: notopleuron 1, a supraalar fringe of 6, postalar with 2, scutellum with none. The scutellar disc bears on either side a scattered group of 12 or more curled, appressed setae and there are 2 or 3 similar ones on the margin. Pleuron with long, stiff pile on all portions, the collar with 5 pairs of bristles. Mesopleuron with scattered, stiff pile and similar patches on sternopleuron, pteropleuron, posthypopleuron. Metapleuron with a wide, vertical band containing numerous, long, slender bristles. Metanotal slopes strongly bullose and micropubescent only; metasternal slopes with numerous stiff hairs; postmetacoxal area membranous. Prosternum not dissociated. Tegula pubescent only.

Legs: All the femora are stout and more or less thickened, the hind femur strongly thickened but entirely on the dorsal half; bristles are comparatively stout, moderately long, longest on the middle tibia. All pile rather scanty and appressed and somewhat longer than usual for this type of pile. All femora ventrally have moderately abundant fringes of fine, erect pile, most dense on the hind pair. The hind femur bears 3 dorsomedial bristles subapically in a row, 3 dorsal, 3 or 4 ventrolateral, and 4 ventral bristles, each of which arises from a very stout, broad tubercle and is distributed over the middle; hind tibia stout, even to the base, slightly curved and bearing 4 to 6 slender dorsal, 4 or 5 dorsolateral, 2 stout lateral bristles, 1 at base and 1 beyond the middle, 4 slender, ventral bristles; apex with 2 dorsal, 1 lateral, 2 medial and 2 or 3 ventral bristles. Ventrally this tibia bears a dense, erect, moderately long fringe beginning just before the middle and becoming shorter apically. Midfemur with 2 or 3 stout bristles dorsally near the apex, its tibia with 4 long, stout anterodorsal, 3 or 4 dorsal, and 1 stout, long, anterior basal, 3 or 4 weak posterior, 5 stout long posteroventral, and 3 or 4 ventral bristles. Anterior femur with a stout, long, posterodorsal subapical bristle and with a double, dorsal row of 5 or 6 bristles, 4 posterior, 3 or 4 long posteroventral, and an apical circlet of 8 bristles and no spine. Tarsi end with long, fuzzy pulvilli, unusually stout, a long, basally swollen empodium, and long anterior, moderately sharp claws chiefly bent at apex; the posterior claws are especially stout, strongly convex, and somewhat blunt.

Wings: The wings are broad. The marginal cell is closed in the margin, with bulbous apex; the anterior branch of the third vein makes a strong, almost rectangular bend and ends well before the apex; first posterior cell closed and stalked; fourth cell closed with a stalk; anal cell closed; the second basal cell ends in 3 veins. Alula large, ambient vein absent.

Abdomen: The abdomen is robust, with nearly parallel sides to the end of the fourth segment, and slightly convex; as long as the wings; the first tergite unswollen; the pile scanty, short, appressed setate and arising from distinct punctures. Stout bristles are present on all tergites, 3 pairs on the sides of the first tergite and 2 pairs on others. Males with 6 tergites only; females with 6 well developed tergites and a quite linear trace of the seventh and eighth, each tucked beneath the apex of the sixth. Male terminalia moderately conspicuous with one-fourth to almost complete rotation. Epandrium large, convex and wide at base, transverse at apex and uncleft or unnotched. What appears to be the gonopod is large, each gonopod meeting and apposed below, so that the whole is as large and as convex and bowl-shaped ventrally as the epandrium. The hypandrium is not in evidence externally and may be reduced or absent.

Distribution: Palaearctic: *Trichardis cinctellus* Seguy (1934); *leucocomus* Wulp (1899) [=*albipila* Becker (1907)].

Ethiopian: *Trichardis cribratus* Loew (1857); *grisescens* Engel (1924); *nigrescens* Ricardo (1903); *picta* Hermann (1906); *testacea* Hermann (1906).

Genus *Trichardopsis* Oldroyd

Trichardopsis Oldroyd, Stuttgarter Beitr. Naturk., no. 9, p. 4, 1958. Type of genus: *Trichardopsis richteri* Oldroyd, 1958, by original designation.

The following description is from Oldroyd:

> The present collection contains a single female of the Laphystiini that I am not able to refer to any existing genus. It resembles *Trichardis* in having the hind femora swollen (though only moderately), with a row of ventral spines, and the hind tibiae bowed. The antennal style, with its dorsal pit and spine, is more like that of *Hoplistomerus* than *Trichardis*. From both these genera *Trichardopsis* is immediately distinguished by the venation (figs. 2–6). From *Gerrolasius*, which has similar venation, *Trichardopsis* is distinguished by the presence of ventral spines on the hind femora, and the absence of scutellar bristles.
>
> Head: Broader than high, with face two-thirds as broad as one eye, and not at all prominent in profile. Mystax reduced to one or two bristles and a few silky hairs close to mouth-margin, with only sparse hairs above. Antennae as in fig. 4, about as long as height of head, with a pointed style which bears a dorsal pit and bristle. Palpi small, cylindrical; proboscis short. Occiput with fine hairs only.
>
> Thorax and abdomen without special features. Bristles are pale and very weak, but lateral patches on mesonotum and discal bristles at sides of abdomen can be detected; there are no scutellar bristles. Both thorax and abdomen clothed with rather long, fine hairs.
>
> Legs. All femora fairly stout; hind femora moderately swollen (fig. 6), with an antero-ventral row of stout spines; hind tibiae bowed, and also moderately swollen, with an anterodorsal row of longer spines. All tarsi normal, though first segment is quite short on all legs. Claws well-developed; pulvilli present, but rather short and narrow.
>
> Wings: Only fourth posterior and anal cells closed; marginal and first posterior cells open. Figs. 2, 3 show the difference in venation between *Trichardopsis* and *Trichardis;* in the latter the first posterior cell is closed and stalked, and veins R_{2+3} and R_4 are strongly sinuate.

Distribution: Palaearctic: *Trichardopsis richteri* Oldroyd (1958). From Iran.

Genus *Triclioscelis* Roeder

FIGURES 41, 427, 893, 902, 1670, 1683, 1689, 1914, 1976

Triclioscelis Roeder, Stettiner Ent. Zeitung, vol. 51, p. 337, 1900. Type of genus: *Triclioscelis burmeisteri* Roeder, 1900, by designation of Herman, 1920.

These flies are near medium size, very robust, with massive, tuberculate hind femur and with minute short appressed pile and with bristles almost absent. Related to *Hoplistomerus* Macquart and separated by the short antenna, the third segment with apical microsegment and spine, and also separated by the very short tarsal segments, and the open marginal cell. Length 10 to 12 mm.

Head, lateral aspect: The face is barely visible in profile on the upper half, the lower portion extended as a low triangle and the face plane from epistoma to antenna. The eye is prominent below anteriorly, slightly more narrow above, a little recessive anteroventrally; its anterior profile is strongly convex, its posterior profile very shallowly convex and almost straight through the middle. The occiput is visible only on the lower third and narrowly near the middle; it is rather prominent at the lower corner. The pile of the occiput is scanty, fine, long and deeply medial; it is more abundant ventrally and bristles begin at the upper third, where there are 7 pairs of short, stout, sharp, pale bristles. The proboscis is short and unusually stout, strongly swollen at the base, laterally compressed and without dorsomedial ridge; the apex is obtuse and truncate and bears considerable stiff pile. Base with only a few short hairs below. Palpus clearly of two segments but small, cylindrical and, excepting 3 stout apical bristles with only 2 or 3 bristly hairs on the terminal segment; segment 1 is hemicylindrical, excavated and fused to the base; segment 2 not porate.

The antenna is attached at the upper fifth of head. It is moderately elongate, the first segment nearly equal or barely longer than the second. The third segment is a little longer than the first two combined, laterally flattened, narrowed on the immediate base and only slightly attenuate; on the immediate apex it bears a short, terminal subsegment which is attached obliquely and extended ventromedially out to form a short, upturned, spoonlike structure; its open face is dorsolateral and contains a minute spine. First segment with 2 or 3 moderately strong, long, ventral and lateral pale bristles or with only a like number of stiff hairs; its apex above with a tuft of stiff setae; second segment with 3 long curved, oblique, stout, black bristles below and sometimes with an equally stout, long bristle above.

Head, anterior aspect: Face below antenna two-sevenths of head width and with parallel sides; subepistomal area long, oblique, slightly sloping laterally from the midline, and bare. The face is pubescent, with a few scattered, curled, flat appressed hairs on the lower half; along the epistomal margin there is a dense fringe of moderately long, fine pile directed downward among which there is sometimes a pair of divergent, slender, widely separated, downwardly directed bristles which are wide apart and between these a pair of closely adjacent similar bristles directed straight forward. In other species there may be stiff pile sublaterally on each side of the face and extending all the way to the antenna, and as many as 8 pairs of slender epistomal bristles for the most part directed straight forward. The unusually short and pubescent front has 8 or 9 appressed setae on each side; it is very slightly wider than the face, the vertex not convergent. Vertex moderately excavated, with oblique sides; ocellar protuberance convexly rounded, moderately large, without pile or bristles. Eye facets strongly enlarged centrally.

Thorax: The mesonotum without pollen or micropubescence but pleuron densely pollinose. Mesonotal height is one-half of the length. The mesonotal pile is microscopically short, scaliform, some areas setate and both completely flat apressed; no differential acrostical or dorsocentral bristles. Humerus with a fringe of suberect, fine pile anteriorly. Mesonotal bristles are present as follows: notopleural bristles absent; a lateral fringe of 8 short but very stout supraalar which may become as many as 10 somewhat longer, stout bristles in other species; postalar pollinose, with only a ventrolateral fringe of fine pile; scutellar margin and surface with only flat appressed minute curled setae. The propleuron has scattered, long hairs on the lower portion and on the collar and on the upper posterior section. Upper half of mesopleuron with flat appressed scalose pile as on the mesonotum and a few isolated hairs posteriorly and on the anterior extension. Upper poststernopleuron with a few scattered appressed setae; upper pteropleuron with 5 or 6 slender, long hairs. Lower post hypopleuron with some short, fine pile; metapleuron with a vertical band of numerous, long, quite slender, delicate bristles; metanotal slopes bullose, without pile; pubescent only; lateral metasternum with numerous long, stiff hairs on the upper section, a few hairs below, the metasternum with only short scattered pile; postmetacoxal area membranous; tegula pubescent only. Prosternum not dissociated.

Legs: Anterior 4 femora quite stout, their thickness evenly distributed throughout the middle; posterior femur strikingly swollen and massive, especially at the middle and beyond, and slightly attenuate basally; femur more than 3 times as thick distally as its width at the trochanters. The hind femur is covered with abundant, flat appressed pile rather long dorsally, short medially and laterally below. Bristles absent but the ventral margin of this femur with a double row of 8 to 10 extremely stout, tuberculate spines enclosing on either side the tibia, and extending over the outer two-thirds of the femur. Hind tibia stout, arcuate and without spines or bristles, though densely flat appressed pilose. Middle femur with 2 short, stout bristles posteroventrally and 2 anteroventrally near the apical third; sometimes with 3 small weak bristles anteriorly near the apex. In other species there are 4 or 5 stout, very sharp, rather longer bristles ventrally on either side and extending back nearly to the base with 3 longer anteroapical bristles, or weak bristles may be present posteriorly on the apical half. Middle tibia with 2 or 3 weak bristles posteriorly and sometimes 2 or 3 weak bristles dorsally. Anterior femora in the type of genus without bristles; in other species with 2 to 4 sharp ventral bristles on the basal half, its tibia may have a weak dorsal row of 2 or 3 bristles, a posterodorsal row of 2 posterior and 2 ventral, or may be only hairs. The segments of all of the tarsi are greatly shortened but this is especially true of the hind and middle tarsi. Tarsi end on the first 4 legs in small, short, basally thickened, moderately sharp claws in the type of genus; pulvilli and empodium as long as the claws and on the hind tarsi with much larger, thick, strongly curved and bluntly pointed claws; in other species the anterior tarsi are not reduced but the claws are frequently rather blunt; pulvilli with marginal fringe.

Wings: The wings are of normal width; marginal cell open. Anterior branch of third vein ends before the wing apex. The first posterior cell is closed with short stalk, the fourth closed with a long stalk; anal cell closed and stalked; the second basal cell ends in 3 veins, the middle vein short. Alula large, extending considerably beyond its attachment; ambient vein complete.

Abdomen: The abdomen is unusually wide and robust, in the type of genus wider than the entire thorax. The tergites are very gently convex, the abdomen slightly drooping; abdomen shorter than wings, the pile exceedingly short and flat appressed, longer, flat appressed and matted along the sides of the tergites.

First tergite with some long, loose pile and with from 3 to 6 stout, lateral bristles laterally on this first tergite only. In the male there are six tergites only, others absent or completely concealed; in the female only six tergites with the seventh completely concealed. Male terminalia largely concealed and only visible as they slightly protrude from a slit between the sixth tergite and sternite. Female terminalia similarly recessed and slightly more protrusive from these sternites and tergites; ventral plate undivided. Female terminalia simple and without spines. Epandrium stout, completely cleft into short, broad superior forceps. Gonopod well developed with a pair of slender, curved, sharply pointed, elongate processes on each. Hypandrium small, flat, thin, short and broadly rounded.

Distribution: Neotropical: *Triclioscelis burmeisteri* Roeder (1900), *femorata* Roeder (1900), *perfecta* Curran (1934).

Genus *Zabrops* Hull

FIGURES 58, 444, 883, 892

Zabrops Hull, Psyche, vol. 64, no. 3, p. 90, 1957. Type of genus: *Triclis tagax* Williston, 1884, by original designation.

These are small flies with short, appressed pile. The face is rounded and convex, the whole with dense, long, bristly hairs. First posterior cell closed with a long stalk, marginal cell open, second vein not recurrent. From *Triclis* Loew it differs in the gibbous and prominent face with numerous bristles below and little or no hairs on the upper part. Third antennal segment swollen. Scutellum with numerous, long bristles. First posterior cell closed and stalked. Length 11 mm.

Head, lateral aspect: The head is of moderate length, the face prominent, short immediately beneath the antenna, rising below into a gently rounded eminence occupying at least three-fourths of the face. The eye is plane on its posterior margin from the bottom almost to the vertex, being posteriorly rounded at the top; its anterior margin is strongly convex. The occiput is prominent below, due to the gradual anterior recession of the eye, which begins well above the middle; occipital pile dense and long and quite fine, with 4 or 5 weak bristles on each side of the upper occiput. Proboscis short, robust and stout at the base and not protruding beyond the face and chiefly directed forward; its apex blunt and the base below on the proximal half with numerous, long, stiff hairs. Palpus minute, composed of 2 quite short segments, the first segment hemicylindrical and excavated, the second bearing 2 or 3 lateral, 1 medial and 1 or 2 apical bristles which are quite long. Ventral hairs of the first segment also long and stiff. The antenna is attached a little above the middle of the head, nearly as long as the head; the first segment is a little longer than the second and the third segment, which is swollen shortly beyond the base is, style included, about as long as the first two segments. At its apex this segment bears a short, stout, spoon-shaped microsegment directed obliquely downward and carrying a dorsally exposed spine. The first segment has ventrally near the apex a long, slender bristle and several long, bristly hairs.

Head, anterior aspect: The head is of only moderate width; face below antenna a little more than one-fourth the head width, with nearly parallel sides, densely pubescent, bearing over nearly the whole surface numerous, long, slender, bristly hairs which extend well beyond the proboscis. The front is divergent to a moderate extent, very short in length, pollinose with an orbital fringe of bristly hair. The vertex is only slightly narrowed; the pollinose ocellarium is moderately high with steeply slanted sides, bearing 4 or 5 pairs of long, bristly hairs.

Thorax: The mesonotum is shining with some of the anterior and lateral portion pollinose. The pile is abundant, bristly and more or less appressed and undifferentiated. Pronotal collar with bristly hairs only. The mesonotal complement of weak bristles consists of 2 notopleural, 3 or 4 supraalar, 2 to 3 postalar, and 4 to 6 pairs on the scutellum. Pleuron with partly bare areas but chiefly pollinose. There is scanty, fine pile on the postventral sternopleuron, abundant pile on the upper and posterior mesopleuron and propleuron. Metapleuron with a vertical band of weak bristles; metanotal callosity micropubescent only; lateral slopes of the metasternum pilose, ventral metasternum widely chitinized with abundant, fine pile; postmetacoxal area membranous; prosternum not or only slightly dissociated ventrolaterally.

Legs: The legs are stout, the hind femur a little swollen distally, and all the legs with dense, appressed, setate pile. The hind femur bears 4 dorsolateral bristles, 2 lateral bristles near the apex, and 2 dorsomedial bristles near the apex. The ventral surface of this femur and the corresponding surface of its tibia have a dense brush of fine, erect pile. The femur also has a few, long, bristly hairs towards the base. Hind tibia with 4 dorsolateral and 3 or 4 dorsoventral bristles; there may be also 1 or 2 dorsal bristles. Middle femur with 1 anteroventral and 1 posterodorsal bristle. On the middle tibia there is a double dorsal row of 5 or 6 bristles and 3 or 4 posterolateral and at least 6 posteroventral bristles or bristly hairs. Anterior femur with 2 small, anterodorsal and 2 posterodorsal bristles. Tibial bristles moderately strong. The anterior tibia rather similar to the middle tibia. Claws sharp, pulvilli long, empodium long.

Wings: The marginal cell is widely open, the second vein not recurrent, the first posterior cell closed and stalked. Fourth posterior cell closed with a long stalk. The lower end vein of the discal cell longer than the upper vein, the anal cell closed and stalked, the alula small, the ambient vein complete.

Abdomen: The abdomen is comparatively robust, the first two tergites at least as wide as the mesonotum. There are six tergites in the male. The pile is dense, appressed, and setate and there are 6 or 7 slender bristles on the sides of the first tergite, a patch of 6 to 8, or fewer, on the sides of the second tergite, 1 or 2 or none on the third tergite, and none beyond. Male terminalia rotate one-fourth or wholly. The epandrium undivided and uncleft, with a very short, blunt, posterolateral process. Gonopod smaller, short, broad at base, with narrow, pointed, dorsal process. Hypandrium reduced to a mere basal lip.

Distribution: Nearctic: *Zabrops tagax* Williston (1884).

I have not seen *Triclis flavipes* Jones (1907) from Nebraska or *Triclis argentifacies* Williston (1901) from Mexico but these species probably belong here.

Genus *Acrochordomerus* Hermann

FIGURES 43, 441, 879, 888, 1567, 1602, 1930, 1935

Acrochordomerus Hermann, Zool. Jahrb., vol. 43, p. 179, 1920. Type of genus: *Acrochordomerus aeneus* Hermann, 1920. by original designation.

These are medium size flies of comparatively bare aspect and short, robust abdomen, belonging to the Laphystini, with only six tergites in both male and female. Very similar in general appearance to *Perasis* Hermann or *Trichardis* Hermann but immediately distinguished by character of the antenna. The antenna is elongate, the third segment has two well developed microsegments; both of these are as wide as the third segment proper and the second is rather long, obtuse apically, with a long, troughlike, dorsal cavity containing a spine. The face with its central depression and ventral gibbosity, together with the type of antenna, strongly suggests the flies of *Dioctria* Meigen; the remainder of these flies in their wing, pile and other characteristics are very like the short-pubescent Laphystini. First posterior cell closed; marginal cell narrowly closed with bulbous apex. Tergites without spinous bristles.

The hind femur is moderately thickened with short, tuberculate spines or spinous bristles. Pile very short, flat appressed. From *Scytomedes* Hermann, with its similar face and antenna, it differs by having the extra microsegment and by the tuberculate spines of the hind femur. In *Scytomedes* the marginal cell is widely open and the proboscis different. Length 14 mm.

Head, lateral aspect: The length of the head is about three-fourths of the height. The face is slightly produced immediately below the antenna, with a comparatively low, rounded gibbosity on the lower half and the intervening area distinctly concave. The eye is medium in length, regularly convex anteriorly, and slightly convex posteriorly near the upper corners; it is strongly recessive anteroventrally below, the upper middle portion of the posterior eye margin plane, the eye is also laterally, considerably extended beyond the occiput. Occiput is almost obliterated in profile but rises gently immediately on either side of the foramen and is swollen and bullose posteriorly below the eye on either side of the base of the proboscis. Pile of occiput scanty, moderately long and stiff on the lower part but shorter and less abundant dorsally; beginning near the middle there are 7 or 8 pairs of weak bristles situated on the upper half. The proboscis is comparatively short; it is directed nearly straight forward and is extended a short distance beyond the face. The proboscis is robust and cylindrical, and distinctly subtruncate ventroapically; this truncate part bears a lateral fringe of stiff bristly hairs in a single row. The base below has numerous, stiff, long hairs and the basal third is moderately swollen both from lateral and dorsal view; medial ridge absent. Palpus clearly of two segments, first segment hemicylindrical and excavated, strongly swollen at the base and bearing numerous, long pale hairs. Second segment microporate, cylindrical, slightly clubbed, bearing 10 or 12 long, yellow hairs but none at apex proper; this segment is set at an angle.

The antenna attached at the upper fifth of the head, unusually elongate and slender, not quite 1½ times as long as the head. The first antennal segment is a little longer than the second, the third segment (microsegments included) is 1⅔ as long as the first two segments combined. The first microsegment is short but distinct, fully as wide as the third segment; the second microsegment is more than 3 times as long as the first, slightly more robust, bluntly rounded at the apex and bears dorsally over almost its full length, beginning close to the base, a deep, troughlike or spoon-shaped depression, with a basal spine. First segment ventrally with 1 or 2 stout bristles as long as the segment and some other long, stiff hairs; dorsally and laterally it has numerous, shorter, bristly hairs; second segment with a few, long setae at apex above and below.

Head, anterior aspect: The width of the head more than one and one-half times the height. Face below antenna one-fourth the head width, with parallel sides below. Subepistomal area moderately large but nearly horizontal, shallowly concave and bare. The face has scanty micropubescence, the pile is abundant, moderately long and stiff on the upper half and curved downward; the sides of the gibbosity have similar pile, the middle and greater part of the gibbosity with numerous, moderately long, stiff bristles. The front is short, largely bare and shining; it is somewhat raised across the middle, with a longitudinal trough or fossa on each side, and bears along the eye margin numerous, weak, bristly hairs. Vertex deeply excavated, with side oblique; the ocellarium is large and high, the ocelli vestigial, and it bears a pair of moderately stiff, slender bristles between the ocelli, set far apart, with in addition posteriorly 2 or 3 other pairs of bristly hairs. Central eye facets considerably enlarged.

Thorax: The thorax is largely bare, with some micropubescence on the posterior mesopleuron, the metapleuron, the propleuron, and the hypopleuron. The pile of the mesonotum is abundant but short, curled appressed and setate. Acrostical and dorsocentral bristles not differentiated. There is a narrow, bare, longitudinal stripe down the middle of the mesonotum anteriorly. The following complement of bristles is present: on notopleuron 1 stout, flat, appressed, moderately long bristle; supraalar with only 7 or 8 short, very weak bristly hairs; postalar with 2 or 3 short, weak bristles. Scutellar margin apparently with no bristles but with a few short, backwardly curved hairs; scutellum thick and convex, with a faintly impressed rim. Propleuron with abundant, long, stiff pile ventrally, the dorsal collar with a wide band of similar bristly pile and posterolaterally with long, stiff, bristly pile. The upper and posterior mesopleuron has abundant, long, stiff pile; sternopleuron, pteropleuron are apilose; the posthypopleuron has a patch of long, stiff hairs; metapleuron convex with a vertical band of long, slender bristles, each of which apically becomes a fine, kinked hair; metanotal slopes micropubescent only; lateral metasternum and the ventral metasternum with abundant, long pile; postmetacoxal area membranous; tegulae micropubescent only.

Legs: The hind femur is distinctly though moderately thickened; it is slightly and gently narrowed toward the base and close to the apex and bears ventrally a row of 6 quite short, but very stout, tuberculate spines. This femur has 1 short bristle laterally at apex, none dorsally; its ventromedial margin has a dense band of rather short but erect, fine pile. At the base medially there are 3 quite long, slender hairs. The hind tibia is distinctly stout, slightly narrower towards the base and bears a dense, ventral band of fine, erect, modified pile extending from the base quite to the apex. It also bears 4 weak, short dorsal bristles; and further this tibia bears 2 distal, appressed, lateral bristles and 3 distal, appressed, ventrolateral bristles; apex with moderately long, stout bristles, including 2 lateral, 1 or 2 dorsal, 3 medial and 3 or 4 ventral bristles. Hind basitarsus and the next segment stout. Middle femur with 2 very stout, ventral, short bristles in the middle and near the base are some long, fine hairs, becoming shorter distally, besides 1 anterior, stout bristle at the basal third. Its tibia has 3 moderately long, posteroventral, 3 short dorsal and 3 or 4 short, anterior bristles, all strongly appressed. Apex with 9 bristles. Anterior femur also stout, with a row of weak, microtuberculate, moderately long, ventral, slender bristles; its tibia has dense, appressed, short pile and moderately long, quite stout bristles, 3 of these posteriorly, its apex with 9 very stout bristles. The tarsus is rough and micronodulate above. Claws sharp; pulvilli large; empodium stout basally.

Wings: The wings are relatively broad and are hyaline or at most slightly tinged with brown. The marginal cell is closed in the genotype species and has a short petiole. Also the end of the marginal cell is bluntly rounded and obtuse. The first posterior cell is closed with a short stalk. The illustration of the wing in this work was taken from a female type specimen in the Hermann collection. The wing of *Achrochordomerus engeli* Efflatoun differs in all three particulars mentioned above and it is much more like the wing of *Hoplotriclis* Hermann, to which it may prove to belong.

Abdomen: The abdomen is robust, gently convex across each tergite, fully as wide as thorax. Six tergites in the female, the first five of nearly equal length, the fourth and fifth slightly longer, the sixth obtusely triangular. Sides of first tergite with a few, rather short, stiff hairs, the remaining pile of the abdomen exceedingly short though abundant; the marginal pile little longer. Tergal bristles absent, the immediate lateral margins are curled down. Female terminalia very short, with long, dense pile, slightly protrusive and visible in lateral profile. A female type from the Hermann collection was studied. No males were studied.

Distribution: Palaearctic: *Acrochordomerus aeneus* Hermann (1920); *engeli* Efflatoun (1937).

Genus *Apoxyria* Schiner

FIGURES 35, 454, 859, 868, 1563, 1679

Apoxyria Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 674, 1866. Type of genus: *Apoxyria apicata* Schiner, 1866, by original designation.

Medium size flies, characterized by the strong ventral bulblike terminalia of the male, the open margin of the first posterior cell, the strongly gibbose face, swollen posterior femora and the swollen and curved hind tibia. The short cylindrical or slightly compressed proboscis has a truncate apex and is directed horizontally forward. From *Helolaphyctis* Hermann it is distinguished by the arched and thickened hind femur and the fine, long, bristly, erect pile of the mesonotum, the strongly and basally attenuate third antennal segment, and the absence of stout bristles on the ocellarium. Length 11 mm., including antennae.

Head, lateral aspect: The length of the head is two-thirds its height. The eye is strongly convex anteriorly and strongly recessive anteroventrally beginning at the lower sixth. The occiput is thick medially; its pile is abundant, long and fine, the ends are crinkled and it is replaced dorsally by a wide band of slender proclinate bristles. The proboscis is short but extends horizontally forward, distinctly beyond the face; it is slightly compressed laterally with nearly parallel sides in profile, the apex truncate, bearing a single lateral row of apical bristly hairs. The basal half is a little swollen laterally and bears numerous, long, fine hairs; dorsal ridge absent. Palpus slender, the basal segment short, partly fused medially, hemicylindrical and excavated. Second segment with numerous, long, slender, bristly hairs and apparently microporate. The antenna is attached at the upper third of the head, moderately elongate, the first segment as long as the second but distinctly swollen and robust. Second segment attenuate basally with swollen beadlike apex. The third segment is one-third longer than the combined length of the first two, rather strongly attenuate on the basal half, the apex a little narrowed, especially from the dorsal aspect. The first segment has numerous long, slender bristles ventrally and laterally, at least 2 of which are as long as the third segment and dorsally with slender, long, bristly hairs. Second segment with 3 or 4 long slender bristles dorsally and ventrally.

Head, anterior aspect: The face below antenna is one-fourth the head width and divergent below. The eyes descend below the cheeks. Subepistomal area comparatively small, concave and nearly horizontal. The face is thinly pubescent with 10 to 12 short, curved, bristly hairs on the plane section of the face lying below; the abrupt ventral gibbosity occupying the lower three-fifths of the face carries quite numerous, long, slender bristles extending far beyond the apex of the proboscis, all of them are curved, attenuate, the upper ones directed forward, the lower ones curled downward. The front is short, pollinose, along the eye margins with 4 or 5 exceptionally long, slender bristles which are intermixed with 7 or 8 equally long, bristly hairs. Vertex rather deeply excavated, the ocellarium moderately large and high with steep sides and bearing 2 or 3 pairs of long slender bristly hairs or very slender bristles. Anterior eye facets strongly enlarged.

Thorax: The pleuron everywhere minutely flat appressed pubescent except on the lower middle mesopleuron and the middle of the sternopleuron where it is polished and bare. Mesonotum bare and shining except for a spot of pollen medial and adjacent to the humerus. Length of mesonotum three times the height. Pile of mesonotum densely short and appressed setate; in it a considerable quantity of long, fine, erect, bristly pile is intermixed. Acrostical bristles undifferentiated, dorsocentral bristles poorly differentiated and only posteriorly. The following complement of bristles is present laterally: humerus with a large, anterior tuft of dense, bristly hairs; notopleuron with 1 to 3 long, quite slender bristles; supraalar area with 3 long bristles and additional long, stiff hair; postalar callosity with 4 bristles; scutellum with 10 pairs; all are long and slender; scutellar disc with abundant appressed bristly pile. Propleuron with a dense tuft of long, bristly pile; pronotal collar and posterior pronotum with similar pile. The sternopleuron with a dense tuft of fine, erect pile, the upper and posterior mesopleuron with abundant, long, bristly pile; posterior hypopleuron with numerous, long, fine hairs; pteropleuron apilose. Metapleuron convex, with a wide vertical band of long, bristly hairs or slender bristles curled downward apically. Lateral slopes of metanotum exceptionally bullose, distinctly set off from the medial portion by a sharp crease and micropubescent only. Lateral slopes of the metasternum posteriorly with pile; ventral metasternum quite wide, chitinized, micropubescent and apilose; postmetacoxal area membranous; tegula with long stiff setae.

Legs: All the femora swollen, especially the hind femur, which is slightly concave ventrally and strongly arched dorsally. The hind tibia is a little shorter, cylindrical, strongly swollen at the base and becoming only slightly wider apically, and distinctly arcuate. The hind tarsi are relatively short and quite stout, the hind basitarsus almost as large as the hind tibia. The dorsal pile of all the femora is abundant, consisting of stout, appressed setae, but on the hind and anterior femora are numerous, long, erect, bristly hairs intermixed. Ventral fringe of the hind femur fine and quite scanty on both the lateral and medial aspects; this fringe on the hind tibia is erect, long and more abundant. The following complement of bristles is present: on the hind femur there is a row of 3 or 4 long, slender curved bristles on the apical fourth, dorsomedially and dorsolaterally; on the hind tibia bristles are stout basally; there are at least 8 dorsomedial; 10 dorsolateral, 4 or 5 fine, lateral, chiefly basal, and 4 or 5 ventrolateral, chiefly distal bristles. Middle femur with 3 or 4 anterodorsal bristles, besides a vertical anterior apical row of 5 or 6 short weak bristles and similar bristles posteroapically; also with 2 closely adjacent, longer subapical, posterodorsal bristles. Middle tibia with well developed long bristles: 4 anterodorsal, 6 posterodorsal, with 2 additional shorter bristles at the extreme base, and with 6 or 7 long, bristly hairs both posterolaterally and posteroventrally, together with other shorter bristly hairs intermixed. Anterior femur on the outer third with long, slender bristles or bristly hairs: 3 anterior, 4 or 5 dorsal; its tibia with 10 short, regularly spaced, anterodorsal, and 8 posterodorsal bristles, besides 8 or 9 posterior and posteroventral bristles. Anterior tarsus of normal length, the first segment as long as the next two. All tarsi end in stout, sharp claws, long wide pulvilli, and a long swollen bladelike empodium.

Wings: Marginal cell open but narrowed. Anterior branch of third vein ends just above the wing apex, the posterior branch ends far behind the wing apex. First posterior cell widely open, though slightly narrowed. Fourth posterior and anal cells closed and stalked; second basal cell ends in 3 veins, the middle vein half as long as the upper vein. Alula of moderate width; ambient vein complete.

Abdomen: The abdomen is as wide as the thorax at the base, very slightly narrowing to the end of the fifth tergite. The first three tergites only slightly convex across the middle but in lateral profile ridged transversely across the middles; these ridges are low and convex but present a distinct, corrugated appearance. The first tergite is three-fifths as long as the second, and bears a dense tuft of fine pile. The abdomen begins to be curved downward at the base of the fifth tergite. There are six tergites visible in both male and female; in females the seventh and eighth are completely concealed beneath the sixth. Sternites with long, bristly pile. Terminalia large, dorsally convex, extensively open ventrally, the base of the gonopod swollen and convex laterally. The epandrium is large, convex, conspicuous, bowllike, with deep, rounded, medial sulcus, enclosing large, conspicuous proctiger. Gonopod laterally and basally exceptionally swollen and convex, with two or three long, prominent, narrow processes. Clasper process also long, Hypandrium present but short and obtuse.

The author was able to study Schiner's type, through the courtesy of the Vienna Museum. Listed by Kertész as "*Patria ignota*," the specimen bears a label reading "Brazil." I examined a male of this genus, the species undescribed, from the Hermann collection, which has the label "Africa orientale, Luitpoldkette." This genus is very close to *Helolaphyctis* Hermann, also from South America.

Distribution: Neotropical: *Apoxyria apicata* Schiner (1866).

Saucropogon, new genus

FIGURES 33, 436, 878, 887

Type of genus: *Perasis transvaalensis* Ricardo, 1925.

Robust, black flies having very short, dense, exceptionally minute, setate pile, and spikelike bristles. From *Perasis* Hermann they are distinguished by the absence of bristles from the abdominal tergites, except on the first tergite, the marginal cell closed in the margin of the wing, and the second vein recurrent and ending at a right angle. In *Perasis* the marginal cell is widely open and the second vein not recurrent, and also there are bristles on the first five tergites of the abdomen. The proboscis is stout and swollen at the base but attenuate and sharp at the apex, and is directed forward and extended well beyond the apex, whereas in *Perasis* the proboscis is small, but little swollen, rather blunt at the apex, and is directed downward and not extended beyond the face. In *Saucropogon* the lateral propleuron has 1 or 2 long, stout, spikelike bristles and the postalar callosity 2 spikelike bristles, whereas in *Perasis* both of these areas have only stiff, bristly hairs. In *Saucropogon* the margin of the epistoma has a curved band of stout bristles and the facial pile is appressed, bristly, and tectiform. In *Perasis* the bristles are weak, the facial pile fine, and the face less extensive below. In *Saucropogon* the anterior branch of the third vein ends far above the wing apex but in *Perasis* only barely above the apex. In both genera the first posterior cell is closed with a short stalk. Length 13 mm.

Head, lateral aspect: The face is narrowly visible on the upper half, gradually becoming a little more extensive below where it forms a low triangle. The eye is widest above, narrowest below, strongly convex anteriorly, and nearly plane through the posterior profile. There is no anterior recession ventrally. The occiput is narrow, about equally developed thoughout and narrowly obliterated at the vertex; its pile is very scanty, being a little more abundant on the lower sixth. There are bristles present throughout the entire length of the occiput including the area behind the proboscis. These bristles become rather stout as far down as the lower sixth of the occiput. The proboscis is of moderate length but strongly and gradually tapered from the swollen base, and therefore rather slender and pointed apically, where it bears some long, stiff, anteriorly directed pile. Medial dorsal ridge inconspicuous; base ventrally with some rather short, stiff hairs. Palpus clearly of two segments; the first is more or less fused and hemicylindrical and excavated; the second is large, swollen, not porate, and bears unusually stiff, black bristles, except medially.

The antenna is attached at the upper fourth of head and moderately elongate. The first segment is 1½ times as long as the second and swollen; the third is somewhat swollen ventrally on its basal third and thence tapered gradually to a blunt apex, its dorsal surface gently convex. At the apex it bears a small microsegment, spoon-shaped, set obliquely on the end of the segment. This microsegment carries on its dorsal margin a conspicuous, rather sharp spur and in the center of the segment the usual apical spine. The first segment carries 2 unusually stout, moderately long, spinous bristles set ventrally before the middle, 2 others subapically, 2 shorter bristles located between, and 1 lateral element, besides a few additional stiff setae apically and also dorsally. The second segment has only long, stiff setae below and dorsally at the apex.

Head, anterior aspect: The width of the head is 1½ times the height. Face below antenna slightly less than one-third the head width and slightly divergent below. The subepistomal area is unusually extensive, concave, pollinose and oblique. The face is very finely pubescent and covered with a dense mat of appressed, flattened, scaliform, silvery pile which immediately beneath the antenna becomes more normal in character. Among the epistomal margin both anteriorly and at the sides there is a fringe, in a single row, of very stout, curved, black bristles; the anterior elements extend nearly straight forward, and there are 8 pairs. Front short, distinctly divergent above, bare in the middle, pollinose laterally and near the eye bearing a row of 6 long and exceptionally stout spinous bristles with additional stout pile opposite the antenna. The vertex is slightly convergent, moderately excavated; the ocellar protuberance moderately large and bearing 2 pairs of stout, divergent, black bristles with some additional more slender bristles anteriorly. Eye facets slightly enlarged anteriorly.

Thorax: The thorax is for the most part bare, but is pollinose narrowly along the lateral margins and posteriorly along the mesopleuron and upon the propleuron, metapleuron, and hypopleuron. Mesonotum shallowly and gently sloping anteriorly. The mesonotal pile is dense but microscopically short and appressed. Acrostical and dorsocentral bristles not differentiated. The humerus pilose. The lateral margins bear moderately long, very stout bristles as follows: 1 notopleural, 2 supraalar, 2 postalar, and no scutellar bristles. Scutellum flattened, with pile similar to the mesonotum. The propleuron bears numerous, stiff, long hairs, especially on the ventral portion. Anterior collar with stiff bristles but the dorsal posterior portion of propleuron bears 2 long, exceptionally stout, spinous, black bristles. Anterior prolongation of mesopleuron, its middle dorsal margin with a patch of stiff, finely pointed pile and some similar pile scattered posteriorly on mesopleuron, upper sternopleuron, and posterior hypopleuron. Metapleuron with 4 long, fanlike, stout bristles. Metanotal slopes micropubescent only; metasternal slopes with numerous, stiff hairs; metasternum with a few, fine hairs; postmetacoxal area membranous. Prosternum not dissociated.

Legs: The anterior and middle femora are short and stout and moderately thickened. Hind femur relatively slender with dense, appressed, fine pile. It bears a dorsolateral bristle at apex, 2 dorsomedial near apex, and 2 or 3 ventrolateral bristles along the middle. Its tibia has 3 or 4 stout, dorsal and 3 stout, lateral bristles, the apex with 7 bristles. The middle femur bears dense, short setate pile, including the ventral surface, and a stout, posterodorsal, subapical bristle, 3 anterior, 2 short, weak bristles at the base, 2 ventral bristles on the basal half, and 1 anteroventral bristle at the outer third. This tibia bears rather short, stout bristles: 4 dorsal, 3 or 4 posterodorsal, 4 posterior, and 4 posteroventral. Tibial apex with 2 dorsal, 3 posterior, 2 anterior (1 exceptionally long), and 3 or 4 ventral (1 especially long). Anterior femur similar to the middle, with stout, long posteroventral subapical, 3 weak, short ventral bristles; its tibia bears 4 or 5 short posterodorsal, a like number of dorsal, 6 posterior, and 3 much longer, stouter posteroventral bristles. The apical circlet is similar; no tibial spine. Tarsi end in well developed pulvilli as long as the sharp claws, and a basally stout empodium.

Wings: The wings are rather broad, subhyaline. Marginal cell closed at the margin, the end of this cell bluntly rounded; anterior branch of third vein sigmoid, ending far above the wing apex; posterior branch further behind. The first posterior cell is closed with a short stalk; fourth posterior cell closed with a long stalk; anal cell closed; second basal cell ends in 3 veins. The alula large; ambient vein complete.

Abdomen: The abdomen is robust, at least as wide as the mesonotum, and as long as the wings. The tergites are slightly convex, the first tergite unswollen laterally. Pile of abdomen, like that of the mesonotum, is extremely dense, microscopically short and appressed, with lateral spots of pollen on each posterior margin. Sternal pile short and subappressed. Bristles are absent except on the first tergite, on which are 3 pairs of exceptionally stout bristles. Males with six tergites; females with six tergites and a liplike seventh tergite one-sixth as long as the preceding segment and largely tucked beneath it. Male terminalia distinctly shortened, rotate one-quarter to the left. Female terminalia very short, with only the prominent, divided and apposed proctiger protruding; no spines present.

Distribution: Ethiopoan: *Saucropogon transvaalensis* Ricardo (1925).

Tribe Stichopogonini

These small, pollinose flies are readily recognized by the strongly divergent front and vertex and by the absence of pile on the lateral slopes of the metasternum; moreover, they tend to be pale in coloration, matching the sand or mud flats which they frequent. The archaic crossvein does not seem to be always present in species of *Cryptopogon* White; in my series it was frequently absent. For *Eremodromus* Zimin the figures given by Zimin indicate a fly with a remarkably low, short face, the antenna arising on the lower fourth or lower fifth of the subglobate head. *Turkmenomyia* Paramonov is said to have 4 very long, weak bristles on the underside of the third antennal segment and to be separable from *Eremodromus* by the longer, third antennal segment and the greater height of the face.

A relatively small tribe of almost worldwide distribution, with the majority of the species of the Stichopogonini from the Palaearctic region. The Holarctic genus *Lasiopogon* Loew belongs here, and together with *Willistonina* Back their members are associated with vegetated areas, especially in the mountainous portions of western America, often near water, while others frequent logs or sand. Some are even found on the sands of sea beaches.

The divisions created by Bezzi (1910b) with the exception of *Lissoteles* Bezzi, are little more than subgenera. Some species of *Stichopogon* Loew and *Townsendia* Williston are among the smallest of all robber flies. They reach a length of 3 mm. The largest members of this tribe are found among *Neopogon* Bezzi, *Willistonina* Back, and *Clinopogon* Bezzi. The author has collected individuals of *Cryptopogon* White in company with others of *Stichopogon* Loew on bay shores in Australia.

KEY TO GENERA OF STICHOPOGONINI

1. Four posterior cells. Extremely small flies. . . . TOWNSENDIA Williston
   Five posterior cells 2
2. Face plane or even slightly concave 8
   Face distinctly gibbous and rounded, often rather strongly protuberant . . . . LASIOPOGON Loew
3. The third antennal segment bears a long, slender, truncate style, nearly or quite as long as the 3 segments combined; third segment oval . . . . LISSOTELES Bezzi
   The third segment bears a short, or long, stout, usually attenuate microsegment carrying an apical spine . . 4

4. Third antennal segment quite large, distinctly wider than either basal segment and approximately twice as long as wide; occipital and pronotal bristles stout; 2 notopleural and 2 supraalar bristles; 2 pairs of scutellar bristles; anterior and middle femora rather swollen. Willistonina Back

Third antennal segment stout; if wider than the basal segment it is much longer than these 5

5. Three submarginal cells . . . . . Cryptopogon White

Two submarginal cells 6

6. Pulvilli absent; face usually densely beset with wide scales. Rhadinus Loew

Pulvilli present 7

7. With a single bristle above the wing and the apex of the palpus pilose; flies of comparatively large size. Neopogon Bezzi

Two bristles above the wing; apex of palpus bare. Usually small flies 8

8. Mystax generally and loosely distributed; face chiefly bare; ocellar setae weak or lacking . . Echinopogon Bezzi

Mystax tectiform and shieldlike, condensed across the oral margin 9

9. Fourth posterior cell closed with a long stalk or petiole; ocellar bristles well developed . . Stichopogon Loew

Fourth posterior cell narrowly closed or closed in the margin; ocellar pile abundant but soft 10

10. Mystax horizontal and curling downward; confined to oral margin or lower fourth of face; second submarginal cell long and narrow at apex . . . . Dichropogon Bezzi

Mystax inclined nearly vertically downward, extending up nearly to the base of antenna; second submarginal cell widely flared, its apex trumpet-shaped. Rather robust, densely pilose flies, short pilose on the thorax but long pilose (especially in males) on the basal half of the abdomen. They are 10 to 15 mm. in length. Clinopogon Bezzi

Genus *Stichopogon* Loew

Figures 53, 509, 929, 938

Stichopogon Loew, Linnaea Entomologica, vol. 2, p. 499, 1847. Type of genus: *Dasypogon elegantulus* Wiedemann in Meigen, 1820. Designated by Back, 1909, the third of 4 species.

Stilopogon A. Costa, Atti Roy. Accad. Sci. Napoli, ser. 2, vol. 1, p. 62, 1883. Type of genus: *Stilopogon aequecinctus* A. Costa, 1883, by monotypy.

Stichopogon has 3 subgenera, *Dichropogon* Bezzi, *Echinopogon* Bezzi, and *Cryptopogon* White.

Minute flies of dark color and usually banded with pale pollen. Characterized by the single row of matlike, epistomal bristles, the very widely divergent front and vertex, the short style attached to the third antennal segment, the greatly enlarged, anterior eye facets and the downward turned, hoodlike cover of the male terminalia formed by the ninth tergite. Lateral metasternum without pile. Length 3 to 8 mm.

Head, lateral aspect: The head is comparatively long with the eye strongly convex anteriorly and anteroventrally recessive to a marked extent. The face is extremely short, and in profile only appears as a low elevation near the epistoma, or is at least confined to the lower half. Occiput prominent below and in the middle obliterated dorsally by the posterior development of the eyes; it is everywhere pollinose with fine, dense pile. On the upper occiput there is a transverse row of weak bristles varying from 3 to 6 on each side. Proboscis stout and cylindrical, with blunt apex; it is sometimes narrowed apically or dorsoventrally compressed at apex. It bears only minute hairs at the apex and either short or long abundant pile on the ventral portion of the base. Palpus with two segments; the first minute, the second more slender, cylindrical, porate, naked, and with a few minute ventrolateral hairs near the base. The antenna is attached near the middle of the head, comparatively small but slender, the short first two segments are subequal; the third segment is nearly twice as long as the first two and with a short spine-tipped style about half as long as the third segment.

Head, anterior aspect: Face below antenna about one-fifth the head width or even less, divergent below, pollinose with a few scattered hairs in the middle in some species and always with a rather matted close-set mystax of moderately stout bristles transversely placed and directed obliquely downward. Front with a few, scattered stiff hairs and together with the vertex strongly divergent, but only moderately excavated. The ocellarium varies from extremely low to about twice the ocellar height; it has either a few divergent hairs or occasionally a pair of weak bristles. Anterior eye facets strongly enlarged.

Thorax: The mesonotum often shining in part or wholly pollinose; the pile is scanty, stiff and undifferentiated. The mesonotal complement of bristles consists of 1 notopleural, 1 supraalar, 1 postalar, and on the scutellar margin 1 or 2 rows of long, stiff hairs and a little additional pile on the disc. Pleuron everywhere pollinose with minute hairs on the upper sternopleuron, the posterior mesopleuron and on the propleuron we find either very scanty pile or sometimes abundant long pile; metapleuron with a vertical row of weak bristles. The squama may be reduced to a linear trace with no pile or in some American species may be short with a fine fringe of pile. Lateral slopes of the metasternum without pile; ventral metasternum widely chitinized with scattered hairs; postmetacoxal area membranous. Prosternum not dissociated.

Legs: The femora are rather stout, especially the anterior and middle pair, their bristles weak and short as a rule. On the hind femur are 3 weak dorsolateral bristles or as many as 9; dorsal apex with a pair of minute bristles; middle femur with 2 apical anterodorsal and posterodorsal bristles; anterior femur with 1 posterodorsal and one anterodorsal bristle. Bristles are slightly better developed on the tarsi and tibiae and may be inconspicuous and short or comparatively long and slender. On the hind tibia are 6 dorsal and 2 anteroventral, the apex with 6 to 8 bristles. Middle tibia with 5 posteroventral, 3 weak anterodorsal, 2 anteroventral, and 2 ventral bristles. Anterior tibia with 3 well developed posteroventral bristles. Claws sharp, pulvilli well developed and slender, and empodium half as long as the claws.

Wings: The marginal and posterior cells widely open, anal cell closed with a short stalk, base of anterior branch of third vein strongly arched. The second basal cell ends in 2 veins and sometimes is fused for a considerable distance beyond. The anterior crossvein enters the discal cell shortly before or shortly after the basal third. Ambient vein complete. Alula absent.

Abdomen: The abdomen is comparatively robust and rather flattened towards the base; nearly as wide as the thorax and at least as wide as the mesonotum. The abdomen is pollinose with fine appressed pile, longer on the sides of the first tergite; bristles are absent on the first tergite. The male has eight tergites, the eighth quite short, and the ninth or epandrium uncleft, exceptionally long and turned vertically or obliquely downward as a broad deep hood with curved sides enclosing the terminalia. Gonopod quite small and short, largely concealed within the bowl of the epandrium. Proctiger small and exposed. Hypandrium very short and medially divided. Females with eight tergites, the last as long or longer than the seventh and with five pairs of long, apically rounded spines. Eighth sternite deeply notched or cleft almost to its base, the edges apposed.

This genus contains some of the smallest of asilids. The species frequent sandy areas and are common along shores or even garden spots.

Distribution: Nearctic: *Stichopogon abdominalis* Back (1909); *arenicola* Wilcox (1936); *argenteus* Say (1823); *colei* Bromley (1934); *fragilis* Back (1909); *pritchardi* Bromley (1951).

Neotropical: *Stichopogon aedon* Walker (1849); *catulus* Osten Sacken (1887); *ocrealis* Rondani (1863).

Palaearctic: *Stichopogon albellus* Loew (1856); *aequetinctus* Becker (1910); *albofasciatus* Meigen (1820) [=*arenivagus* Koch (1872), *dziedzickii* Schnabl (1882), *nigrifrons* Loew (1847), *ripicola* Dufour (1833)]; *auctus* Bezzi (1912); *barbiellinii* Bezzi (1910); *barbistrellus* Loew (1854); *beckeri* Bezzi (1910); *canariensis* Becker (1908); *candidus* Becker in Becker and Stein (1902); *canus* Seguy (1932); *caucasicus* Bezzi (1910); *chrysostoma* Schiner (1867) [=*lucidiventris* Becker (1903)]; *dorsatus* Becker (1915); *dubiosus* Villeneuve (1920); *elegantulus* Wiedemann in Meigen (1820) [=*aequecinctus* Costa (1883), *frauenfeldi* Egger (1855), *riparius* Loew (1871), *tener* Loew (1857)]; *flaviventris* efflatoun (1937); *inaequalis* Loew (1847); *inconstans* Wiedemann (1828); *kertészi* Bezzi (1910); *marinus* Efflatoun (1937); *muticus* Bezzi (1910); *punctiferus* Bigot (1878); *pusio* Macquart (1849); *pygmaeus* Macquart (1849); *scaliger* Loew (1847) [=*congener* Loew (1856)], *scaliger krueperi* Bezzi (1910); *schineri* Koch (1872) [=*spinimanus* Pokorny (1887)]; *septemcinctus* Becker (1908); *surcoufi* Villeneuve (1920).

Ethiopian: *Stichopogon caffer* Hermann (1907); *dilutus* Walker (1851); *grossus* Bromley (1947); *hermanni* Bezzi (1910); *maculipennis* Engel and Cuthbertson (1939); *punctum* Loew (1851) [=*punctatus* Loew (1852)]; *unicolor* Ricardo (1925).

Oriental: *Stichopogon albicapillus* Wulp (1872); *cinctellus* Bigot (1878); *gymnurus* Oldroyd (1948); *infuscatus* Bezzi (1910); *maculipennis* Brunetti (1928); *meridionalis* Oldroyd (1948); *nicobarensis* Schiner (1868); *peregrinus* Osten Sacken (1882); *tomentosus* Oldroyd (1948).

Australian: *Stichopogon bancrofti* Hardy (1934); *congressus* Walker (1861); *minor* Hardy (1934); *obscurus* Hardy (1928); *vernaculus* White (1917); *scalaris* Bigot (1878).

Subgenus *Dichropogon* Bezzi

Figures 62, 453, 937, 946

Dichropogon Bezzi, Ann. Mus. Nat. Hungarici, vol. 8, p. 133. 1910. Type of subgenus. *Stichopogon schineri* Koch, 1872, by original designation.

Quite small, slender, pollinose flies, which closely resemble *Stichopogon* Loew, to which they are quite closely related. The mystax at the epistoma is stout and rooflike or tectiform. The ocellar bristles are weak and indistinct, but in *Stichopogon* are strong. In *Stichopogon* the mesopleuron is sparsely pilose or bare; in *Dichropogon* it is pilose. Base of fourth posterior cell with a short petiole or sessile. In contrast to *Clinopogon* Bezzi the furcation of the third vein is long and narrow. There are 2 bristles on the supraalar region. As in all members of the tribe the front and vertex are widely expanded, the lateral metasternum without pile. Length 7 mm.

Engel (1930) places the following, additional species in this subgenus: *canariensis* Becker, *caucasicus* Bezzi, *pusio* Macquart.

Head, lateral aspect: Eye very strongly convex anteriorly and with marked recession posteriorly which begins at the middle of the eye. Occiput thick in the middle and especially prominent below, but on the dorsal half of the head sloping rapidly down to the eye margin below the vertex. Occipital pile above quite scanty, abundant below but only moderately long. Bristles restricted to the postvertical region, where they form a row of about eight stout bristles. Proboscis short, rather stout, with a high dorsal ridge somewhat swollen at the base; the apex is bluntly pointed. The base with fine pile below; apical pile minute. Palpus quite slender and cylindrical, of two segments, without pile or bristles on the apical half. Antenna attached just above the middle of the head, rather short but slender. The first segment is minute, from a third to a fourth as long as the distally expanded, beadlike, second segment. Third segment 1½ times as long as the combined length of the first two. Slightly tapered from the base bearing an oblique, long microsegment which is more than a third the length of the third segment and carries a stout apical spine.

Head, anterior aspect: The face below antenna little more than one-eighth the head width and divergent below. Face pubescent, the lower anterior epistomal margin with a dense mat of stout bristles, rather short and not longer than the proboscis. There are some 6 or more pairs. Sides of epistoma with 4 slender, long hairs. Front strongly divergent and continued up to the top of the vertex. The front has fine, long, scattered pile. The ocellarium is low with 4 or 5 pairs of stiff, short, curled hairs. Eye facets unusually strongly enlarged centrally.

Thorax: The thorax is everywhere pollinose. Pile of mesonotum short, fine, scanty, setate and subappressed. Acrostical elements absent or poorly differentiated. Dorsocentral elements differentiated only posteriorly and consist of a few, fine rather short, stiff hairs. Humerus pilose; lateral bristles long and stout, 1 notopleural, 1 supraalar, and 1 postalar; 3 pairs of scutellar marginal bristles. Scutellum flat with abrupt, pollinose rim and pile only marginally. Propleuron with abundant, fine pile; mesopleuron with a few, fine hairs along the posterior border only. Sternopleuron with 2 or 3 hairs; hypopleuron without pile or bristles; metapleuron with a vertical band in 1 row of 9 quite long, slender, fanlike bristles. Metanotal slopes pubescent only; lateral metasternum without pile. Postmetacoxal area membranous, though slightly narrowed.

Legs: The hind femur is slender towards the base; the anterior four femora are a little thickened. The hind femur bears 1 dorsomedial, 1 apical and 1 subapical bristle, 4 lateral, and 3 exceptionally long ventral bristles; hind tibia with 3 long, dorsal, 1 dorsolateral at the base, 1 lateral in the middle, and 2 ventral bristles. Apex with 6 bristles. These legs bear dense, appressed, setate pile. All tarsi end in slender pulvilli, a long empodium, and sharp, slender claws.

Wings: The wings are as in other members of the group; the second submarginal cell is strongly expanded anteriorly at the base; the anterior branch of the third vein ends at wing apex. All posterior cells are widely open. Anal cell closed. The anterior crossvein enters the discal cell near the base. The second basal cell ends in two veins which are fused beyond. Alula narrow; ambient vein complete.

Abdomen: The abdomen is basally as wide as the mesonotum and a little flattened basally; it is tapered posteriorly and subcylindrical with the sides rolled. Pile abundant, setate, erect or suberect; bristles restricted to the first tergite where they are long but extremely weak. There are 8 tergites well developed in the female. Female terminalia with about 4 pairs of blunt spines on the acanthophorites. Basal plate moderately produced posteriorly.

Subgenus *Echinopogon* Bezzi

FIGURES 452, 931, 940

Echinopogon Bezzi, Ann. Mus. Nat. Hungarici, vol. 8, p. 131, 1910. Type of genus: *Dasypogon albofasciatus* Meigen, 1820, by original designation.

Quite small flies comparatively slender and at least in part pollinose. They are very closely related to *Stichopogon* Loew, and principally distinguished by the loose character of the stout bristles which compose the mystax, in contrast to the bridgelike or tectiform arrangement of these bristles in *Stichopogon* and its other subgenera. The ocellar bristles are weak. The face is bare above the epistoma, the palpus bare except at base, and the lower posterior part of the eye is exceptionally recessive, leaving the occiput greatly exposed. Antennal microsegment inclined downward. Length 7 or 8 mm.

Head, lateral aspect: The face in profile very slightly produced on the upper half, below forming a small triangle prominent because of recession of the eye. The eyes are unusually long and strongly convex anteriorly. Occiput exceptionally thick at the middle and below and on the dorsal half gradually sloping down to the eye level at the vertex. Occipital pile nearly absent dorsally, moderately abundant in the middle, where it is fine and erect and quite dense and directed downward on the lower half. Bristles restricted to the upper seventh of the head, where there are 9 stout, rather short bristles. Proboscis small and short, slightly swollen towards the base, the apex obtuse with a few, stiff hairs and the base below with numerous, fine, long hairs. Palpus quite slender, composed of two segments. Antenna attached at the middle of the head, slender and moderately long, the first segment quite short, as long as high, the second segment swollen apically, the third more narrow than the apex of the second and very slightly narrowed towards the apex and bearing an attenuate, obliquely held microsegment which carries an apical spur. The third segment is nearly twice as long as the combined length of the first two segments; the microsegment is as long as the second segment.

Head, anterior aspect: Face below antenna about one-sixth of head width and strongly divergent below. Subepistomal region moderately large but nearly horizontal, plane and bare. Face pubescent, bearing a number of exceptionally stout, moderately long bristles in several rows anteriorly above the epistomal margin. Side margins with weaker bristles. The front as is characteristic in the group is widely and strikingly expanded to the vertex where it is half the head width. Front pollinose with numerous, fine, erect hairs. Vertex scarcely excavated; ocellarium large and low and bearing a few, weak hairs. The occipital bristles form a stout row behind the vertex. Eye facets greatly enlarged anteriorly.

Thorax: The thorax is everywhere pollinose. Pile of mesonotum quite short and fine and suberect; no clearly differentiated acrostical bristles present. Dorsocentral elements are present as long, fine slender hairs posteriorly. Humerus short pilose, moderately stout; long, lateral bristles present as follows: 1 notopleural, 1 postsupraalar, 1 postalar, no scutellar bristles. Scutellum quite flat or slightly concave, with abrupt margin; surface pollinose and only the margin with fine, erect pile. Propleuron with abundant, fine pile; pronotum with pile only. Posterior mesopleuron with a band containing about 20 fine, subappressed hairs. Upper posterior sternopleuron with a patch of pile. Metapleuron with a single, vertical row of 9 quite long, moderately stout, fanlike bristles. Metanotal slopes pubescent only. Lateral slopes of metasternum without pile. Postmetacoxal area membranous.

Legs: The hind femur and tibia slender and somewhat elongate, the anterior and middle femora more or less thickened, especially the anterior pair. Femora and tibiae pollinose except below; the hind femur is densely, finely, appressed setate and with a short bristle at the apex dorsally on either side; 6 bristles in the lateral row, 2 quite long, moderately stout, ventral bristles, one near the base, and the other one before the middle. The hind tibia has 4 dorsal, 1 dorsolateral in the middle, 2 rather stout, long, curved, ventrolateral bristles. The apex has 6 bristles. Middle femur with 1 stout bristle anteroapically, another anteriorly at the outer third; this tibia has 4 dorsal, 2 anterior, 1 at the middle quite long and curved and 4 posterior, and 2 ventral bristles exceptionally long and stout and oblique. Anterior tibia with 3 or 4 dorsal and 3 quite long, stout, posterior bristles, the apex with 6 bristles and no spine. Apical bristles of the first 3 tarsal segments exceptionally long and stout; all tarsi end in long, slender pulvilli, a long empodium, and sharp, slender claws.

Wings: The anterior branch of the third vein ends at wing apex, but is pulled backward; the posterior branch ends well behind the wing apex. All posterior cells open, the fourth narrowed to one-half its width; anal cell closed and stalked; second basal cell ends in 2 veins and is fused beyond. Alula narrow and linear; the ambient vein complete.

Abdomen: The abdomen is dorsoventrally compressed, flattened, with parallel sides to the end of the fourth tergite, slightly tapered or narrowed beyond. Pile of abdomen quite short and erect. Bristles restricted to the first tergite; 6 or 7 weak bristles present. Eight tergites well developed in the female. On the female terminalia the acanthophorites bear 4 or more pairs of long, spatulate, thin spines; basal plate produced posteriorly into a lateral, more or less rounded flap.

Subgenus *Cryptopogon* White

Figures 61, 446, 895, 904, 1596, 1691, 1692, 1942, 2029

Cryptopogon White, Papers Proc. Royal Soc. Tasmania, p. 76, 1917. Type of subgenus: *Cryptopogon vernaculus* White, 1917, by monotypy.

Small, pale pollinose flies which are very similar to *Stichopogon* Loew and differ principally in the presence of a crossvein between the second vein and the base of the anterior branch of the third vein. This crossvein is apt to be absent in some individuals of the species. Length 4 to 6 mm.

Head, lateral aspect: The head length is moderate, the eye strongly convex anteriorly. The occiput is prominent and thick below, and obliterated near the vertex. Pile of occiput fine over the middle and below; upper occiput with a row of short, bristly hairs. The face is scarcely visible in profile, a little more prominent below. Covered with micropubescence, the lower part of face has a short patch of dense, moderately fine, bristly hairs which consist of 25 to 30 pairs; sides of subepistoma with a row of 8 fine hairs. The proboscis is wide, short, blunt, cylindroid, with a few hairs at apex and numerous, long, fine hairs at the base below. The palpus is composed of two segments, is extremely slender, cylindroid, with a sharp apex; second segment apilose. The antenna is attached at the upper third of the head and similar to *Stichopogon* in structure.

Head, anterior aspect: The face below the antenna is narrow and considerably expanded below. The front is long, with 3 or 4 fine, short hairs on each side. The low ocellarium has 4 or 5 fine bristles and 2 long, stiff bristles. The vertex is scarcely excavated and is shallowly concave.

Thorax: The mesonotum is comparatively low with thick, fine, suberect microsetae. The following bristles are present: 1 on the notopleuron, 1 on supraalar, 1 on postalar; the flattened scutellum with no bristles but a number of fine hairs on the margin. Humerus pilose, the disc without pile. The pleuron is micropubescent, the propleuron pilose, postmargin of the upper mesopleuron with a few minute, short hairs; pteropleuron and hypopleuron bare; metapleuron with a vertical row of erect, long, slender bristles. Metanotal slopes without pile; postmetacoxal area membranous.

Legs: The anterior femur is distinctly thickened; posterior femur only slightly thickened. Hind femur with a row of 3 dorsomedial bristles near the apex, a row of 5 central and dorsolateral bristles, and 1 bristle near the base and apex; ventromedially this femur has a fringe of long, fine pile; elsewhere densely microsetate. Hind tibia with 3 dorsal, 4 lateral, 3 ventral bristles and at the apex with 1 dorsal, 2 long lateral, 3 medial, and 2 ventral bristles. Midfemur with 3 anterior bristles situated near apex in a row. Midtibia with 2 or 3 long anterior, 2 or 3 short dorsal, and 2 ventral bristles; apex with 1 posterior, 1 anterior, 1 ventral bristle. Anterior femur with 2 small subapical dorsal bristles; anterior tibia with 3 short posterior, 4 ventral, 2 short basal, 2 long distal bristles; apex with 1 long anterior, 2 short dorsals, 1 long medial, 3 short ventral; no spine present. All tarsi end in well developed pulvilli, long unthickened empodium and sharp claws.

Wings: Venation of wings similar to *Stichopogon* but with a short, vertical crossvein present between the second vein and the base of the anterior branch of the third vein.

Abdomen: The abdomen is more or less flattened and widened and only slightly to moderately convex across the tergites; it is as wide as the thorax at base and equally wide to the end of the fifth segment. Abdominal pile short, erect, microscopic, fine and longer on the sides of segments one and two. There are eight segments present; beyond the fifth segment the abdomen is slightly narrowed to blunt, obtuse apex. Male with hoodlike, notched epandrium, small, short gonopod, and apically rounded hypandrium. Female with 4 pairs of quite short but distinct dorsal spines.

A series of individuals of a *Cryptopogon* species was collected on the sandy beaches below Brisbane, Queensland by the author in October 1953. Some of these individuals lacked the extra crossvein on the wing. Since the flies are so very similar to *Stichopogon*, the status of *Cryptopogon* must be considered weak.

Genus *Eremodromus* Zimin

Figures 2509, 2510, 2530

Eremodromus Zimin, Bull. Inst. Zool. Appl. Phytopath. Leningrad, vol. 4, p. 21, 1928. Type of genus: *Eremodromus noctivagus* Zimin, 1928, by monotypy.

The following is Zimin's description in translation:

> The antennae stand near or close to the upper border of the mouth; the front on its upper half is covered with white bristles; pulvilli absent, claws straight; the fourth posterior cell is stalked or petiolate; the fork of the third vein is behind the distal end of the discoidal cell, the latter is relatively short and sends to the wing margin 3 veins; the third antennal segment is (without bristle) shorter than the second.

Distribution: Palaearctic: *Eremodromus noctivagus* Zimin (1928).

Genus *Turkmenomyia* Paramonov

Turkmenomyia Paramonov, Mem. Acad. Sci. l'Ukraine, vol. 15, p. 335, 1930. Type of genus: *Turkmenomyia gracilis* Paramonov, 1930, by original designation.

The following is Paramonov's description in translation:

> In their entire habitus and their structure very similar to the genus *Stichopogon*, although it is very closely related to the genus *Eremodromus* Zimin, 1928. It is distinguished from the genus *Stichopogon* by the fact that (1) the pulvilli are wholly rudimentary, (2) claws very long and only slightly curved, (3) mesopleuron with bristles, not strong, but quite clearly visible; with *Stichopogon* the bristles are only sometimes suggested, (4) the bristles of the legs are relatively numerous, more or less erect and longer than in *Stichopogon*. Besides, the species *gracilis* n. sp., which I consider the type of genus has on the under side of the third antennal segment 4 very long yet thin bristles. Everything else is as with *Stichopogon*. From *Eremodromus* it is distinguished only through the antennal structure and it is to be noted the third segment is definitely longer than the sum of the first two segments together while in *Eremodromus* it is definitely shorter than that of the second segment. Besides the antennae in *Eremodromus* stand still closer to the mouth border.

Distribution: Palaearctic: *Turkmenomyia gracilis* Paramonov (1930); *nigrita* Paramonov (1930). From Transcaspia.

This genus appears to certainly belong to the Stichopogonini, although Paramonov has not commented on the presence or absence of the three definitive characters of the tribe, which are the extraordinarily widened front and vertex, greatly recessive ventral eye margin with exaggerated occiput, and the absence of pile from the lateral metasternum.

Since these flies, as well as *Eremodromus* Zimin, both lack pulvilli, they should prove related to *Rhadinus* Loew, also a member of this tribe and without pulvilli. The extremely low-set antenna of *Eremodromus* with its clavate hind femur and the ventral, bristly hairs of the third antennal segment in *Turkmenomyia* should offer a ready means of identification of these two flies.

Genus *Neopogon* Bezzi

Figures 450, 932, 941, 1917

Neopogon Bezzi, Ann. Mus. Nat. Hungarici, vol. 8, p. 147, 1910. Type of genus: *Dasypogon trifasciata* Say, 1823, by original designation.

Pollinose flies of medium size, characterized by the single row of close-set bristles on the epistoma. The antennal style is as long as the third antennal segment and supraalar bristles are absent. Closely related to *Stichopogon* Loew, they are much larger and average two or more times the size of that genus. In *Neopogon* the vertex is even wider than in *Stichopogon*. Length 10 to 15 mm.

Head, lateral aspect: The head is comparatively long, the face straight or plane in profile rather prominent below, with extensive cheeks; at the base of the antenna plane with the eye. The eye is strongly convex anteriorly, markedly recessive anteriorly on the ventral portion, leaving the occiput exposed. The upper occiput is well developed medially, everywhere pollinose with thin, fine pile, and with a transverse row of 7 pairs of stout bristles across the upper portion, which bristles are located well behind the ocelli. The proboscis is robust, directed downward or forward and extended well beyond the face but not beyond the mystax. It is quite blunt, with short, fine pile ventrally near the base and with a low dorsomedial carina. Perhaps of two segments, the basal segment minute, short, the second segment tapered, porate, obliquely truncate, with a few, fine hairs apically. The antenna is attached near the middle of the head. The first two segments are short, stout, subequal in length. The slightly attenuate third segment is not quite twice as long as the first two segments and bears a stout style with apical spine fully as long as the first two segments.

Head, anterior aspect: The head is moderately wide with the face narrow at the base of the antenna and rather strongly divergent below. The face and cheeks are densely micropubescent, the former with a few scattered appressed hairs and a mystax composed of a single row of long, close-set, stout, flattened, bristly hairs presenting a matted appearance. Subepistomal area horizontal, pubescent. The front and vertex are strongly divergent and rather deeply excavated, pollinose, with a few, fine, erect hairs. The ocellarium is broad and low, with large ocelli. Anterior eye facets exceptionally enlarged.

Thorax: The thorax is everywhere pollinose; the mesonotum has abundant, short, setate pile undifferentiated anteriorly and the medial line with a narrow, bare stripe. The mesonotal complement of bristles consists of 1 stout notopleural, no suparaalar, 1 postalar, and no scutellar bristles. Scutellum is flat with minute setae on the margin. On the pleuron, the pile is restricted to rather abundant, fine hairs on the propleuron, a very few shorter, inconspicuous hairs on the posterior mesopleuron and a conspicuous, single, vertical row of bristles on the metapleuron containing 9 or 10 elements. Squamae with a fine, long fringe. Lateral slope of the metasternum is without pile; ventral metasternum chitinized; postmetacoxal area membranous and densely pubescent.

Legs: All the femora are stout, but the middle and anterior femora are rather strongly swollen, especially over the middle and base. Hind femur with a dorsolateral row of 6 stout bristles, a ventromedial row of 8 weaker bristles; dorsal apex with a bristle on each side; middle femur with a single, stout, anterodorsal, subapical bristle and 2 similar posterodorsal bristles. Anterior femur with 3 stout bristles, 2 of them dorsal; these lie at the middle of the femur, at the outer fifth and at apex. Tarsi and tibiae with longer, stouter bristles. Hind tibia with 2 ventrolateral and 4 weak dorsal bristles, the apex with 8 bristles. Middle tibia with 1 posterior subapical, 3 stout, posteroventral, and 1 stout and 2 minute anterodorsal bristles. On the anterior tibia there is a single, minute, basal, anterodorsal bristle and 4 prominent posterior bristles of increasing length. The posterior bristles of the anterior and middle tarsi and lateral bristles of the hind tarsi are especially long and stout. Claws large, long, sharp; the pulvilli long and slender; the empodium long as the claws and flattened. Legs everywhere pollinose with short, appressed pile.

Wings: The marginal and all the posterior cells are open; anal cell closed with a short stalk. Ambient vein complete. Middle end vein of the second basal cell is short. Alula quite linear.

Abdomen: The abdomen is longer than the wings, robust, pollinose, and nearly as wide as the thorax. The males have nine well developed tergites; the females with eight, the last tergite is as long as the preceding tergite. Sides of the first tergite with a row of 2 to 5 stout bristles. Male terminalia enclosed by the deeply sulcate, somewhat down-turned, arched and hoodlike epandrium or ninth tergite. Female terminalia with 5 pairs of long, bluntly pointed spines; eighth sternite deeply notched.

These flies frequent sandy or muddy shores of rivers or any large body of water with a preference for damp sand. They are often found on weathered driftwood from which the bark has fallen.

Distribution: Nearctic: *Neopogon coquilletti* Bezzi (1910); *salinus* Melander (1923); *snowii* Bezzi (1910); *trifasciatus* Say (1823) [=*candidus* Macquart (1846), *fasciventris* Macquart (1849), *gelascens* Walker (1860), *plagiatus* Walker (1848)].

Neotropical: *Neopogon schnusei* Bezzi (1910).

Genus *Clinopogon* Bezzi

FIGURES 59, 60, 121, 448, 939, 1686, 1818, 2045

Clinopogon Bezzi, Ann. Mus. Nat. Hungarici, vol. 8, p. 153, 1910. Type of genus: *Clinopogon sauteri* Bezzi, 1910, by original designation.

These are flies of less than medium size. Related to *Stichopogon* Loew through the widely divergent front and face. These flies are characterized by the wide face, the long, dilated third antennal segment, the abundant, long tufts of pile on the mesopleuron, sternopleuron and the whole scutellum. Face with a conspicuous, dense, arched and shieldlike mat of downturned pile, which in the middle of face reaches nearly to the base of the antenna. The abdomen is broad at the base and flattened, as wide as the thorax and strongly tapering apically. Length 12 to 15 mm.

Head, lateral aspect: The length of head is three-fourths of the height. The face in profile is quite plane with the eyes beneath the antennae, slightly and gradually produced below, more prominent below as the eye recedes; the anterior facial margin is plane and vertical. The eye is unusually long and strongly recessive below. The occiput is only narrowly produced through the middle, obliterated on the upper third, but quite prominent and thick below; its pile is fine and abundant dorsally but dense and long, with the ends thinned and curled on the ventral half. Deeply behind the vertex there is a row of 4 pairs of moderately stout, pale bristles which extend backward rather than upward. The proboscis is small, cylindrical, slender, with obtuse apex bearing subapically a circlet of stiff pile; the dorsal ridge absent, the base below with a number of fine, long hairs. The proboscis is directed obliquely forward. Palpus of two segments, the second cylindrical, slender, without apical hair or bristles. The antenna attached at or just below the upper third of the head; antenna of moderate length, the first two segments short, of equal length. The third segment is strongly compressed laterally, tapering gradually from the base to near the middle at which point it is widest; before the apex it is considerably narrowed and bears a short, thick, microsegment carrying apical spine. The pile of the first two segments consists of a few very fine, short hairs.

Head, anterior aspect: The width of head is 1½ times the height. The face below antenna is nearly one-sixth the head width and divergent below; subepistomal area moderately large, plane and pubescent. The face is pubescent with, along the lower anterior and lateral margin, a dense mat of long, flattened pile arising on a triangular area in the lower middle portion of the face, forming a curtain or screen around the epistoma. The front and vertex are very strongly divergent, the latter more than half as wide as the head; sides of front with moderately long, scattered stiff pile; vertex shallowly excavated, the ocellarium large but low, bearing several pair of stiff anteriorly curled hairs. Eye facets strongly enlarged.

Thorax: The mesonotum and pleuron are pollinose and the mesonotum nearly three times as long as high. Pile of mesonotum scanty, fine, suberect and setate across the middle. Acrostical and dorsocentral bristles are absent or undifferentiated; humerus densely erect pilose. The lateral margins have abundant, stiff, erect pile and long but slender bristles, 1 notopleural, 2 supraalar, and 1 postalar. Scutellum thick and flat, the outer rim slightly rounded dorsally; the ventral edge bears a fringe of 7 to 10 pairs of long, distinct but quite weak bristles; upper margin and disc with numerous, long, fine, erect hairs. Propleuron, including the collar, densely long, fine pilose. Mesopleuron anteriorly and along the posterior borders with a wide band of long, dense, erect, fine pile that is continued down below on the upper posterior corner of the sternopleuron. Pteropleuron with a few fine, erect hairs. Metapleuron with a vertical fanlike fringe of about 20 long, stiff, bristly hairs and weak bristles. Metanotal slopes micropubescent only; metasternal slopes without pile. Metasternum proper with a few fine, long hairs; postmetacoxal area membranous, tegulae pubescent only.

Legs: The femora are stout; prosternum not or only slightly dissociated posteriorly. The hind femur is slightly concave below, a little thicker towards the middle and apex; it has dense, suberect, setate pile, a rather abundant, erect, short fringe of pile below with a few longer hairs submedially. There is a bristle dorsomedially at the apical fourth, a dorsal bristle just beyond the middle, and 4 dorsolateral bristles confined to the basal half. The hind tibia is of nearly uniform width and has abundant, stiff, suberect pile; its bristles are short and weak and consist of 4 or 5 dorsal, 3 or 4 lateral, and apex with 5 bristles. Middle femur with only dense, fine, erect pile, its tibia with equally dense, shorter, subappressed pile and longer ventral fringe; it has 2 short dorsal, 1 stout, short anterior just before the middle and 1 long, stout, posterior bristle just beyond the middle. Anterior femur and tibia similar to the middle pair, the anterior bristle absent. Tarsi end in wide, long, spatulate pulvilli and wide flat empodium. Claws slender, sharp and bent strongly at apex.

Wings: The wings are broad at the base, pointed apically in contrast to related genera of this tribe. Marginal cell widely open, the anterior branch of the third vein ends at wing apex; the second submarginal cell is strongly arched anteriorly at the base; posterior cells widely open, fourth posterior cell slightly narrowed; anal cell closed and stalked; second basal cell closed with two veins and not fused beyond. Alula narrow; ambient vein complete.

Abdomen: The abdomen is as wide as the thorax and as long as the wings; basal tergites rather flattened across the middles. First lateral tergite not swollen. Eight tergites present in the female, the last well developed. Pile of abdomen abundant, fine, subappressed across the middles of the tergites, erect and scarcely longer laterally except on the sides of the first three tergites. All sternal pile short, fine, and erect or suberect. Bristles restricted to the sides of first tergite, where there are 4 or more pairs, as well as additional, bristly hairs. The female terminalia show a row of 5 or more long, bluntly rounded, slender, hollowed spines upon the acanthophorites. Ventral plate divided a short distance from the apex.

Distribution: Palaearctic: *Clinopogon maroccanus* Becker (1913).

Australian: *Clinopogon maritima* Hardy (1934); *sauteri* Bezzi (1910).

I have an unidentified specimen of *Clinopogon* from the Seychelles.

Genus *Lissoteles* Bezzi

FIGURES 50, 482, 933, 942

Lissoteles Bezzi, Boll. Lab. Zool. Portici, vol. 4, p. 177, 1910. Type of genus: *Lissoteles hermanni* Bezzi, 1910, by original designation.

These are small black or grey flies characterized by dense pale pollen and a thick mat of pile and bristles on the face; the pile of face is directed downward like a hood. The third antennal segment is short, oval with a long, stout, naked style. Front and vertex widely divergent. Length 9 mm.

Head, lateral aspect: The head is long, with the face short and plane with the eye margin on the upper third and only moderately extended beyond the lower eye margins, and nearly straight in profile. The eye is strongly convex anteriorly, gently convex on the upper posterior half and with exceptionally strong anterior recession below which leaves a great portion of the occiput exposed. The occiput is densely pollinose and has equally dense long, fine, white pile. Upper occiput with a transverse row on each side of 5 or 6 stout, pale bristles. The proboscis is robust, bluntly pointed, directed chiefly downward and with fine pile ventrally and at the apex. Palpus composed of two segments, the first short, partly fused, the second long, truncate and porate, its pile restricted to 3 or 4 hairs beneath the base. The antenna attached a little above the middle of head, short, the first two segments subequal. The third segment is very little longer than the second, short oval, and bearing a stout, slender style, polished and bare, with spine at apex and its total length approximately the same as the length of the three segments.

Head, anterior aspect: The head is of moderate width, wider above than below; the face below antenna about one-fourth the head width and divergent below. The face is densely micropubescent with a broad, medial, widening band of somewhat matted, long, flattened, scalelike, silvery hairs. Sides of the subepistoma with fine pile. Front and vertex strongly divergent and moderately excavated. The dense pubescence ends transversely in a line running across the anterior edge of the posterior ocelli. Pile of front abundant and coarse. Ocellar protuberance low, with all the ocelli enlarged. The anterior eye facets enlarged.

Thorax: The mesonotum of moderate height, densely pollinose with abundant, short, fine pile, which is undifferentiated. The following complement of bristles present: 1 notopleuron, no supraalar, 1 postalar, and on the scutellar margin 2 or 3 rows of numerous long, bristly hairs of very weak bristles. Pleuron everywhere pollinose with abundant long pile on the propleuron, upper and posterior half of the mesopleuron, posterodorsal corner of the sternopleuron, and on the metapleuron a vertical band of pile and long slender bristles. Squama with a short, fine fringe, lateral slopes of the metasternum without pile, the ventral metasternum widely chitinized and long pilose; postmetacoxal area membranous. Prosternum only narrowly dissociated posterolaterally.

Legs: Femora stout but not swollen, the hind femur bears abundant, short pile, a dorsolateral row of 17 bristles and a dorsomedial, apical row of 5 bristles; included among these is the apical pair of bristles. On the ventral surface are 10 or more long bristly hairs or weak bristles. Middle femur with an anterodorsal, apical row of 5 or 6 bristles. The anterior femur with only long, stiff hairs and fine pile. All the tibiae and tarsi have long, well developed bristles. Posterior tibia with 4 dorsal, 7 anterior, and 4 ventral bristles. Middle tibia with 3 dorsal, bristle-hairs, 4 posterior bristles, 5 or 6 anterodorsal, 2 anteroventral and 2 posteroventral bristles. On the anterior tibia are 4 stout bristles, 2 posterior and 2 posteroventral, besides other slender bristly hairs. Claws sharp, pulvilli well developed, and the empodium long and flattened.

Wings: The marginal and all of the posterior cells open; anal cell closed with a short stalk. Alula nearly absent; ambient vein complete. The second basal cell ends in two veins which are fused for a short distance beyond.

Abdomen: The abdomen is robust, nearly or quite as wide as the mesonotum and with nearly parallel sides to the end of the sixth segment. Males with eight tergites. Females with eight well developed tergites, the eighth as long or longer than the seventh. Female terminalia with 5 pairs of long spatulate obtuse spines. The eighth sternite deeply cleft. Male terminalia similar in most respects to *Stichopogon* Loew. Gonopod quite short, convex, but not concealed. Eighth sternite divided medially.

Distribution: Neotropical: *Lissoteles hermanni* Bezzi (1910); *vanduzeei* Cole (1923).

Genus *Willistonina* Back

FIGURES 51, 483, 935, 944, 1684, 1985, 2016

Willistonina Back, Trans, Amer. Ent. Soc., vol. 35, p. 337, 1909. Type of genus: *Habromyia bilineata* Williston, 1884, by original designation.

Flies of medium size, black or greyish in color, with slender tapering abdomen which is distinctly longer than the wing. They are readily recognized by the relatively narrow face, strongly divergent front, the minute, slender, cylindrical palpus and the large, oval, rather swollen third antennal segment. These are relatively minutely pilose flies and are longer than all other members of the tribe. The lateral metasternal slopes lack pile. Length 15 mm.

Head, lateral aspect: The length of the head is a little more than half the height. The face is extremely short, plane with the eyes on the upper third, the whole posterior profile is vertically plane, the lower part prominent only because of the recession of the eye. Eyes narrowed below, moderately recessive anteroventrally; one-eighth of the head height is below the eye. The occiput is prominent but slopes strongly towards the middle of the head and away from the eye margin. The occipital pile is scanty, confined to the lower half; bristles begin at the middle of the head and become much stronger and stouter dorsally; 12 pairs are present. The proboscis is of moderate size, cylindroid, slightly tapered, the apex blunt and bearing a few apical and ventral hairs; there is no basal ventral pile except 2 or 3 hairs in the middle of the ventral lateral margin; the proboscis is directed obliquely downward. The palpus is small, rather slender, cylindrical, the first segment hemicylindroid, the second porate, a little tapered with a single stiff hair at the apex and a few hairs ventrally towards the base. Antenna attached at the upper third of the head, relatively short, the first two segments of nearly equal length; the third is large, oval, compressed laterally and a little longer than the first two segments combined and bears at its apex at a slight angle a short, conical, microsegment with a minute spine. Pile of first and second segments consists of a few dorsal and ventral apical appressed setae.

Head, anterior aspect: The width of the head is 1⅓ times the height. The face below the antenna is one-sixth the head width and divergent below to one-fourth of the width. Subepistomal area prominent, oblique, plane, pubescent and rather long. The face is densely micropubescent, without pile, and with a close-set double row of 10 to 12 pairs of stout, downward-directed bristles above the epistomal margin. The front is strongly divergent, rather sunken, pollinose, with 1 lateral bristle and 3 or 4 lateral setae; the vertex is moderately excavated with a large, low, ocellar protuberance. The ocelli are large and there are 2 pairs of anteriorly directed bristles near the posterior ocelli. Central eye facets are very strongly enlarged.

Thorax: The thorax is pollinose, the mesonotal height is three-fourths of its length. Pile of mesonotum is short, scanty, subappressed and setate with an irregular acrostical row of bristles, very poorly differentiated; dorsocentral bristles become stout posteriorly where there are 4 pairs, 1 pair especially long. The following long, lateral, stout bristles are present: 3 notopleuron, 2 supraalar, 2 postalar, and 2 pairs on the scutellum. Basal half of the scutellum is flat, the whole pollinose, apilose, the humerus with a few short hairs only. Propleuron with a tuft of long, stiff pile, the collar with 4 pairs of quite stout bristles. The posterior pronotum has only short, stiff pile. Mesopleuron and pteropleuron apilose. Upper sternopleuron with 2 or 3 short hairs; posterior hypopleuron with a tuft of short, bristly hairs. Metapleuron with 8 or 10 fine hairs, 1 of which might be described as a slender bristle. Metanotal slopes pubescent only; lateral metasternum apilose, ventral metasternum chitinized with a band of short pile. Postmetacoxal area membranous; tegulae pubescent only.

Legs: The femora are rather stout, especially the anterior and middle pair. They are extremely short appressed pilose with few bristles. These bristles and especially those of the tibiae are exceptionally stout. Anterior coxae anteriorly with some 40 bristles; middle coxae with 20; posterior coxae laterally with 3; the trochanters with 3. The hind femur has 1 stout, dorsal, subapical bristle and a stout dorsolateral back from the apex; its tibia has 1 short dorsal, 3 ventrolateral growing progessively longer, and ending in a still longer apical bristle; apex with 1 dorsal, 2 lateral, the lower one exceptionally long and stout, 2 long, stout ventrals, and 1 or 2 medial. Ventrally this femur and tibia are very short, appressed pilose. Middle femur with 2 stout posteroapical, 1 anterodorsal at the apical third, 2 weak dorsal, 2 anteroventral, the last subapical is very long and stout and longer than the basitarsus, besides posteroventrally on the outer half 3 exceptionally stout, long bristles. Anterior femur with a small bristle posteriorly near the middle; its tibia gradually dilated to nearly twice the basal width and it bears 3 posteroventral, exceptionally long, stout, oblique bristles on the outer half. The hind tibia at apex tends to have one of the apical, ventral bristles directed obliquely downward. All tarsi end in stout, rather pointed claws, long spatulate pulvilli and long, stout empodium.

Wings: The wings are distinctly shorter that the abdomen, reaching just beyond the fifth tergite. Marginal cell widely open; the anterior branch of the third vein ends a litte before the wing apex and is gently sigmoid. First posterior cell is fully open; fourth posterior cell is closed in the margin or narrowly open; anal cell is closed in the margin. Alula moderately wide, ambient vein complete, second basal cell ends in 3 veins, the middle vein short.

Abdomen: The abdomen is slender, gently tapered, a little flattened on the third to fifth tergite. Males with eight tergites, the eighth only one-fifth as long as the seventh. Eight tergites present in the females, the eighth quite short, about one-seventh as long as the preceding one. Pile of abodmen very short setate and subappressed and without long pile laterally. First tergite with 2 or 3 short, weak bristles laterally and a few hairs of about the same length. Abdomen pollinose laterally, more shining towards the middle, wholly shining on the seventh tergite. Males with moderately large, obtuse, fully cleft and apposed epandrium and small proctiger. Gonopod larger; it is not as long as the epandrium but has greater depth. Hypandrium short but distinct. Males lack the down-turned hood so characteristic of *Stichopogon* Loew and its allies. Female terminalia with 4 or 5 pairs of stout spines laterally. Ventral plate cleft, a few short bristles present.

Distribution: Nearctic: *Willistonina bilineata* Williston (1884), *bilineata nigrofemorata* Wilcox (1935).

Genus *Rhadinus* Loew

FIGURES 52, 456, 934, 943, 1688, 1970

Rhadinus Loew, Neue Beiträge . . . pt. 4, p. 38, 1856. Type of genus: *Rhadinus ungulinus* Loew, 1856. Designated by Engel, 1929.

Small, slender flies, densely pale pollinose, the base of the abdomen is nearly as wide as the mesonotum but rather strongly tapered. Related to *Stichopogon* Loew. The face is beset with scalose pile which in some cases is quite broad and striking. The front is extensive and with the vertex moderately expanded. They are immediately separated from related genera by the absence of pulvilli; the antennal style tends to be more slender and elongate. Length 6 to 9 mm.

Head, lateral aspect: The length of the head is two-thirds of the height. The face is visible only very slightly below and visible here because of the natural recession of the eye. It is slightly rounded, convex, retreating and short; the antenna is placed quite low. The eye is large, long, strongly and rather evenly convex anteriorly but with a marked anteroventral recession posteriorly beginning from the middle of the head. The occiput is well developed and prominent on the lower half, short above the middle of the head and entirely obliterated near the vertex. The pile of the occiput is abundant, long, coarse, becoming scanty on the upper third and absent above this point, where it is replaced by short bristles that become longer and stouter behind the vertex. There are 5 weak pairs laterally along the eye margin, 3 strong and longer bristles dorsally. The proboscis is strongly attenuate from the lateral aspect, terminating in a comparatively narrow, rounded apex; it is slightly tapered or swollen towards the base from the dorsal aspect; it has a high medial ridge beginning near the base, becoming shorter, and ending near the apex; the latter has only a few, fine, short hairs and the base ventrally has 2 or 3 fine hairs. The proboscis tends to be directed obliquely forward and downward; it is short and rather robust but extends distinctly beyond the face. Palpus minute, distinctly of two segments, the first segment broad, short, convex ventrally, hemicylindrical and excavated and fused medially; the second segment is a little shorter, quite slender and cylindrical, and bears 1 or 2 exceptionally fine, slender hairs ventrally at the apex.

The antenna is attached at the middle of the head; it is of moderate length and quite slender. The first segment is one-half to two-thirds as long as the second, completely hidden in profile; the second is short, a little widened distally; the third is not as wide basally as the second segment and including the long, stylelike microsegment, which is itself as long as the third segment, it is at least three times the length of the first two segments combined. Base of third segment bulblike or pyriform; the distal portion is attenuate and stylelike, or the whole segment may be gently tapered to the apex. The style has an apical, bristly spine. First segment with a few, short setae ventrally, the second with longer, bristly setae ventrally and dorsally.

Head, anterior aspect: The width of the head is 1⅓ times the height. Face below antenna is less than one-third the head width. The face is pubescent with dense pile beginning at or just beneath the antenna; the pile is long, extended horizontally forward, or matted, appressed and more or less extended downward. The pile is composed of slender, slightly flattened hairs in some species; in others it is composed of large, ranked rows of exceptionally broad scales, attenuate basally, often notched apically. The subepistomal region is short, small, concave, bare, and only slightly oblique. The front is long and wide, densely pale pubescent or pollinose, with a submarginal row of bristly hairs including 1 or 2 weak, pale bristles. The front is greatly widened, the vertex is still wider, not quite half the head width, deeply excavated, with slanting sides. The ocellarium is of only moderate width and height; it has large ocelli and between them 2 or 3 pairs of slender hairs. Anterior eye facets very strongly enlarged.

Thorax: The thorax is everywhere densely, minutely pubescent or pollinose; the mesonotum is three-fourths as high as long. Pile of the mesonotum is very scanty; acrostical bristles are absent; there is a row of short, appressed, poorly differentiated dorsocentral bristles which remain short but are somewhat more erect posteriorly and are few in number; anterior half of mesonotum laterally with a few scattered, coarse hairs more abundant along the lateral margin. Humerus with 5 or 6 short, pale hairs. The mesonotum bears the following complement of long, rather slender bristles: 1 notopleuron, 1 suprapostalar, 1 or 2 postalar, and 4 to 9 pairs of long, but usually more slender scutellar bristles. Scutellum flat and densely pollinose, with rectangular rim and apilose and a basal crease. Propleuron widely fused and broad across the middle ventrally; the pronotum composed of a single ridge and with a row of 7 or 8 slender, bristly hairs; the ventral elements are without pile but the lateral portion has a tuft of long, fine hair and the whole posterolateral border has a vertical fringe of conspicuous, long, coarse pile, especially long and matted in front of the humerus. Sternopleuron with pile only posteriorly where there are 4 or 5 hairs; mesopleuron with a narrow dorsal and posterior band of bristly pile without well developed bristles; pteropleuron and hypopleuron apilose; metapleuron with a vertical row of long, numerous, slender bristles; lateral slopes of the metanotum pubescent only; lateral and ventral metasternum also pubescent only, post-metacoxal area membranous and pubescent.

Legs: The femora are stout without being swollen; their tibiae slender throughout and nearly as long as the femora. All the femora densely pubescent with scanty, appressed, bristly pile dorsally; tibiae pubescent laterally and to some extent anteriorly and posteriorly. The following complement of stout, sharp, somewhat curved bristles is present: on the hind femur 11 lateral, 4 dorsolateral beginning at the outer third, 2 dorsomedial near the apex, with the outer element doubled, 3 to 5 ventrolateral on the outer fourth, at least 4 ventral distributed chiefly through the middle and 4 quite long, bristly hairs ventromedially on the basal half; this tibia has 3 strong, long, dorsomedial confined to the basal half, 2 dorsolateral near the base, 4 lateral, 5 strong ventral bristles. Middle femur with an anterior dorsal tuft of 4 bristles near the outer third and with 2 or 3 similar posterodorsal bristles near the outer third, and with 8 to 10 ventral bristles partly anterior and partly posterior. Its tibia has 5 anterodorsal bristles, long and stout, 3 shorter posterodorsal, 6 to 8 longer posteroventral, 2 long anteroventral, besides 3 shorter, more slender anterior bristles. Anterior femur with 7 posterodorsal bristles; the first is placed just before the middle, the last subapical and matched by an anterodorsal bristle; ventral surface with an anterior and posterior row of long, bristly hairs. Its tibia has an anterodorsal bristle near the base, 3 posterodorsal, 3 conspicuous, long, posteroventral, besides 3 short, posterior bristles. Apex without spine; all basitarsi slender, a little longer than the next segment and with long apical bristle. Tarsi end in long, sharp, gently curved claws; the pulvilli absent, the empodium bristlelike and about three-fourths as long as the claw but less than half as long on the anterior tarsus.

Wings: The marginal cell is widely open; the anterior branch of the third vein is gently sinuous; second submarginal cell a little widened anterobasally, flared apically; first and second posterior cells widely open, fourth posterior and anal cells closed with a short stalk; middle end vein of the second basal cell short to long. Alula a little wider than the costal cell; ambient vein complete.

Abdomen: The abdomen is strongly tapered at the base, almost as wide as the mesonotum; it is sometimes flattened on the basal tergites or again strongly convex; the terminal portion of the abdomen is cylindroid. Males and females each with eight tergites; in each the eighth is three-fourths as long as the seventh. Pile of the abdomen is short, fine and appressed, erect on the terminal segments; almost the whole surface is densely pollinose; sides of the first tergite with numerous, long, coarse hairs and slender bristles. Male terminalia obtusely conical, not rotate; the epandrium not cleft. What appears to be the gonopod protrudes apically a short distance beyond and immediately beneath the epandrium with a minute proctiger between. Female with 4 pairs of long, large, exceptionally blunt, scooplike spines, and without accessory bristles below, although there is some short pile. Eighth sternite extended beyond the corresponding tergite in a broad, scooplike, blunt process.

Distribution: Palaearctic: *Rhadinus khargaiensis* Efflatoun (1937); *megalonix* Loew (1856); *ungulinus* Loew (1856); *tewfiki* Efflatoun (1937).

Genus *Lasiopogon* Loew

FIGURES 64, 460, 896, 905, 1680, 1682, 1984, 2015

Lasiopogon Loew, Linnaea Entomologica, vol. 2, p. 508, 1847. Type of genus: *Dasypogon pilosellus* Loew, 1847, as *Dasypogon hirtellus* Meigen, 1820, not Fallén, the second of 3 species. Designated by Rondani, 1856.

Daulopogon Loew, Berliner Ent. Zeitschr., vol. 18, p. 377, 1874. Erected because of use of *Lasiopogon* in plants. Type of genus: Same as for *Lasiopogon*.

Lasiopogon has 1 subgenus, *Alexiopogon* Curran.

Small flies with slightly tapered and flattened abdomen, at the base as wide as the mesonotum and with a strong, suggestive, general similarity to therevids. They are characterized by the protuberant, rounded face bearing many long, strong bristles; rather numerous, long bristles on the thorax and scutellum. From genera of somewhat similar, general appearance such as *Cyrtopogon* Loew, *Nannocyrtopogon* Wilcox and Martin, or *Lestomyia* Williston, they will be quickly separated by the absence of pile on the lateral metasternum, the strongly divergent front and the small, cylindrical, attenuate palpus, which usually lacks apical bristles. *Lasiopogon* is a member of the Stichopogonini and is not closely related to the *Cyrtopogon* group of genera. Length 8 to 12 mm.

Head, lateral aspect: Head not quite as long as high. Face conspicuous, strongly produced and convex, tending to be abrupt and reduced to the eye level for a narrow space immediately below the antenna. Eye long, strongly convex anteriorly and rather strongly recessive anteroventrally. The occiput is well developed throughout, especially below. The pile of the occiput is dense, fine, and moderately long, beginning at the middle and continuing below but on the upper half it is replaced by numerous, slender bristles which in the type of genus become long and curled forward from the base at the upper corners of the vertex. The proboscis is directed obliquely forward or downward, is stout in dorsal view and strongly expanded towards the base; the apex is quite obtuse; it has a rather well developed medial ridge but only on the basal half. The apex has some fine hairs above and below, narrowly; the base has a number of long, stiff hairs ventrally. Palpus small, cylindrical, slightly tapered apically; the first segment is short, hemicylindrical and excavated; it is fused at least medially; the apex of the second segment has a large pore, is obliquely truncate and its bristles reduced in number, 1 subapical and 2 or 3 lateral bristles in the middle. Antenna attached just above the middle of the head; only moderately long, first two segments short and nearly equal in length; third segment a little more than 1½ times as long as the first two combined, bearing a single, elongate microsegment which is scarcely tapered apically but carries an unusually long, sharp, apical spine. Pile of the first two segments rather more than usually abundant, moderately long, oblique, quite stiff and bristly.

Head, anterior aspect: The face below the antenna is about one-fourth the head width, or less and divergent below. The front is strongly divergent to the vertex. The subepistoma is small, nearly horizontal, concave, and pubescent. The face is pubescent, bearing on the gibbous portion, except narrowly along the eye margin, quite numerous, long, stiff bristles. The front is long, pollinose, bears numerous long, slender, bristly hairs widely along the lateral margins and additional submedial row separated by a longitudinal crease. The front is strongly divergent and is moderately excavated with gently sloping sides; it bears a large, conspicuous ocellarium carrying 2 or 3 pairs of long, stiff bristles and in addition 3 to 5 pairs of long, fine hairs. Anterior eye facets only a little enlarged.

Thorax: The mesonotum is low and pollinose but the pleuron finely appressed pubescent. Pile of the mesonotum for the most part fine and bristly, long or short; characteristically with quite long dorsocentral bristles extending to the posterior level of the humerus. Acrostical bristles scattered but distinct. In the type of genus there is the following complement of long, mostly slender bristles: 1 posthumeral, 2 notopleural, 5 or 6 supraalar, 3 postalar, and 6 to 8 scutellar bristles. Scutellum flattened, pubescent, with pile submarginally. Propleuron with moderately long pile; collar with stiff pile only, posterior section only with long, stiff pile, mesopleuron behind with 7 or 8 slender bristles or bristly hairs. Upper sternopleuron with some long pile. Pteropleuron and hypopleuron apilose, metapleuron with 8 long, stout bristles in a single row, sometimes reduced in number. Metanotum micropubescent only, the lateral metasternal slopes without pile, the ventral metasternum chitinized but narrow and separated from the first tergite only laterally; it bears a transverse crease across the middle and only the posterior part has pile. Postmetacoxal area membranous only; tegula with bristles.

Legs: The legs are moderately stout but not swollen; pile of the femora abundant, short, flat appressed dorsally and laterally but with rather abundant, fine, erect pile ventrally and many long, slender, additional, bristly hairs in the type of genus, fewer in other species. In the type of genus the following complement of bristles present: on the hind femur 15 lateral, shifting to a dorsolateral position apically, with 2 or 3 dorsomedial at the apex. Its tibia with long, well developed, basally stout, finely attenuate bristles of 9 dorsal, 9 or 10 shorter, finer dorsolateral, 6 longer stout lateral, and 6 ventral bristles. Ventral surface of the tibia with long, stiff pile and a brush of setae on the outer third. Middle femur with a few weak bristles posteriorly at the apex; its tibia has 8 or 10 moderately strong dorsal, 6 to 8 mostly weak posterior, 3 or 4 weak, long posteroventral, a like number of anteroventral, but only 5 or 6 especially strong, long, oblique anterior bristles. Anterior femur with long, stiff, erect pile posteriorly and ventrally; its tibia similar to the middle tibia, the anterior bristles lacking. Apex with very long bristles; no tibial spine present. All tarsi end in long claws, long, spatulate pulvilli and a long, bladelike empodium.

Wings: The length of the wings is 2½ times the width. Marginal cell widely open. The anterior branch of the third vein ends just before the wing apex and is gently arched at the base. First posterior cell fully open, the fourth slightly narrowed or rarely greatly narrowed. The anal cell closed with a short stalk, the middle vein ending in the second basal cell, short to quite long, ambient vein complete; the anterior cross vein lies before the middle of the discal cell.

Abdomen: The abdomen is comparatively robust in some species and in others more slender. It is gently and only slightly tapered; the prominent male terminalia usually wide. Much of the surface is pollinose with fine, flat, appressed pile or subappressed setae in the middle of the tergites and the lateral margins with setae, or especially in males with abundant, long, fine pile. Males with seven tergites, the last two shorter, and females with eight tergites; in the female the eighth tergite may be even longer than the seventh and is highly polished, without pollen. Sides of first tergite with a number of quite weak bristles. Male terminalia large, prominent, obtuse and fully rotate. The most conspicuous element is the large bulboconvex epandrium which is fully cleft into forceps with large recessed proctiger. The ventral half is composed of a short but conspicuous and obtuse structure which I interpret as the gonopod fused on each side with the hypandrium. Females with acanthophorites and 8 to 10 long, slender spines on each side; the ventral element consists of either a flat plate or a boatlike, or troughlike, partly compressed plate, produced apically and narrowly cleft on the produced part.

As far as known today this genus is almost confined to Europe and the United States. They are most numerous in the western part of America and in eastern central Europe. A species is known from Alaska at a latitude equivalent to the middle of Sweden.

Distribution: Nearctic: *Lasiopogon actius* Melander (1923); *albidus* Cole and Wilcox (1938); *aldrichii* Melander (1923); *arenicola* Osten Sacken (1877); *aridus* Cole and Wilcox (1938; *atripennis* Cole and Wilcox (1938); *bivittatus* Leow (1866); *californicus* Cole and Wilcox (1938; *canus* Cole and Wilcox (1938); *carolinensis* Cole and Wilcox (1938); *chaetosus* Cole and Wilcox (1938); *cinereus* Cole (1919); *currani* Cole and Wilcox (1938); *delicatulus* Melander (1923); *dimicki* Cole and Wilcox (1938); *drabicolum* Cole (1916); *fumipennis* Melander (1923), *fumipennis olympia* Cole and Wilcox (1938); *gabrieli* Cole and Wilcox (1938); *hinei* Cole and Wilcox (1938); *littoris* Cole (1924); *martinensis* Cole and Wilcox (1938); *monticola* Melander (1923); *oklahomensis* Cole and Wilcox (1938); *opaculus* Loew (1874); *pacificus* Cole and Wilcox (1938); *pugeti* Cole and Wilcox (1938); *quadrivittatus* Jones (1907); *ripicola* Melander (1823); *shermani* Cole and Wilcox (1938); *slossonae* Cole and Wilcox (1938); *terricola* Johnson (1900); *testaceus* Cole and Wilcox (1938); *tetragrammus* Loew (1874); *trivittatus* Melander (1923); *willametti* Cole and Wilcox (1938); *yukonensis* Cole and Wilcox (1938); *zonatus* Cole and Wilcox (1938).

Palaearctic. *Lasiopogon appeninus* Bezzi (1921); *bezzii* Engel (1929) [=*tarsalis* Bezzi (1917)]; *cinctus* Fabricius (1781) [=*cinctellus* Meigen (1820), *hirtellus* Fallen (1814)]; *delphinensis* Bezzi (1921); *grajus* Bezzi (1921); *immaculatus* Strobl (1893); *intermedius* Oldenberg (1924); *lichtwardti* Oldenberg (1924); *macquarti* Perris (1852); *montanus* Schiner (1862) [=*bellardii* Jaennicke (1867), *macquarti* Schiner (1856) not Perris]; *nanus* Oldenberg (1924); *nitidicauda* Bezzi (1921); *pilosellus* Loew (1847) [=*hirtellus* Meigen (1820) not Fallén]; *pusillus* Bezzi (1921); *spinisquama* Bezzi (1921); *tarsalis* Loew (1847); *tridentinus* Bezzi (1921); *velutinus* Bezzi (1921).

Oriental. *Lasiopogon gracilipes* Bezzi (1921); *solox* Enderlein (1914).

Country unknown. *Lasiopogon aeratus* Walker (1849).

Larva and pupa of *Lasiopogon cinctus* Fabricius have been mentioned by Lundbeck, 1908, and described and illustrated by Melin, 1923.

Subgenus *Alexiopogon* Curran

FIGURE 63

Alexiopogon Curran, Families and genera of North American Diptera, New York, p. 117, 183, 1934. Type of subgenus: *Lasiopogon terricola* Johnson, 1900, by original designation.

Very small flies closely related to *Lasiopogon* Loew of which it is at most a subgenus. They are distinguished from *Lasiopogon*, *sensu stricto*, by the absence of dorsocentral bristles, and the absence of bristles or long hairs upon the scutellar margin; some, fine, short, apical hairs may be present. Length 5 to 7 mm.

Head, lateral aspect: The head is comparatively long, the face on the upper third beneath the antenna quite plane with the eye margin and moderately protuberant, gibbous and gently rounded on the lower portion. The eye is strongly convex anteriorly with considerable recession anteroventrally and very convex posteriorly on the upper half; the occiput is prominent on the upper fifth. Pile of the occiput abundant, fine and long on the lower half; on the upper half the pile is replaced by fine bristles which are at first short, becoming longer and more strongly curled towards the vertex. Proboscis short but robust, the apex obtusely rounded, almost truncate, extending a short distance beyond the face, directed forward at a slight downward angle. There is a high medial ridge extending to the outer fourth; the apex bears a few, stiff hairs and the base below some long pile.

Head, anterior aspect: The face cover is micropubescent, apilose with a considerable number of long, slender bristles occupying a low triangular area across the face above the epistomal margin and extending down along the sides of the subepistoma. The antenna are attached at or just above the middle of the head in profile, comparatively short, the first 2 segments nearly equal in length, the second beadlike, considerably wider and more robust than the first. The third segment is widest in the middle, only slightly compressed laterally and gently sloping to the base and apex, neither of which are greatly narrowed; the truncate apex bears a rather stout, slightly attenuate microsegment, which is a little more than one-third as long as the third segment and carries a minute apical spine. The front is conspicuously divergent, with at the outer third, a shallow, longitudinal crease continued back on either side of the ocellarium; sides of the front submarginally with 4 stout, long bristles and several additional hairs. Vertex moderately excavated, with gently sloping sides, the ocellarium comparatively large and between the ocelli with one rather stout and one rather slender bristle, both long and with 3 pairs of additional fine, short, stiff hairs. Anterior eye facets centrally enlarged.

Thorax: The thorax is pollinose, pile of mesonotum scanty, suberect and bristly or setate. Acrostical bristles consist of a narrow, poorly differentiated band of 3 or 4 irregular rows. Dorsocentral bristles are absent; humeral pile scanty, short and bristly, the lateral margins with rather stout, quite long bristles: 2 notopleural in a diagonal row, 1 supraalar, 1 postalar, and no scutellar bristles. Scutellum flat, pubescent, transversely wrinkled with very shallow crease medially at the base, deep creases laterally, the margin with a few, fine, quite short, rather stiff hairs. Metapleuron with 4 slender bristles in a vertical row and a few, stiff hairs behind. Lateral metasternum without pile; ventral metasternum chitinized with a few, fine, long hairs; the postmetacoxal area membranous. Tegula pubescent only. Squama with a few fine hairs medially, apparently in one row.

Legs: The femora very slightly thickened through the middle portion, especially on the anterior pair; the pile is fine, appressed and setate dorsally on the femora and tibiae and these areas pollinose or pubescent. Ventral pile rather abundant but fine, short, erect on the femora only, the tibial ventral pile scanty, delicate, bristlelike and suberect. Bristles well developed, rather long, and, considering the size of the species, rather stout.

Wings: The marginal cell and all the posterior cells widely open, the fourth is opened by two-thirds of the maximum width; middle end vein of the second basal cell rather long; anal cell closed with a short stalk. Alula extremely narrow; ambient vein complete.

Abdomen: The abdomen at the base is as wide as the thorax, sometimes with parallel sides to the end of the fourth segment, or with the sides rolled and therefore tapering and more slender. The pile is quite short, appressed and setate, slightly longer but still flat appressed laterally. Sides of first tergite with only stiff hairs, Male with seven tergites, the seventh is one-half as long as the sixth. Female with eight tergites, the eighth nearly as long as the seventh; the last two female tergites with short, fine, erect pile. Male terminalia comparatively short, rotate one-fourth to the left; epandrium completely cleft and developed into large and conspicuous superior forceps. Female terminalia with 8 pairs of long, slender, apically pointed, spoonlike spines; ventral plate extending will beyond the eighth tergite and notched at apex, compressed, troughlike and V-shaped; lower lateral process with weak bristles.

This subgenus has only one species.

Genus *Townsendia* Williston

FIGURES 54, 514, 936, 945, 1665, 1693, 1989, 2018

Townsendia Williston, Kansas Univ. Quart., vol. 4, p. 107, 1895. Type of genus: *Townsendia minuta* Williston, 1895, by monotypy.

Exceptionally minute flies characterized by the long subglobular head from the lateral aspect, the immensely enlarged anterior eye facets, short proboscis and the strongly divergent front. These flies possess all of the characters of the tribe. Only 4 posterior cells present. Length 3.5 to 5 mm.

Head, lateral aspect: The length of the head is three-fourths the height. The face is almost completely plane with the eye margin profile, a minute portion appears at the level of the epistoma. The eyes are exceptionally long and strongly convex anteriorly and almost equally convex posteriorly on the upper half, moderately recessive anteroventrally below; the vertex appears above the eye, The occiput is developed on the upper half, a little more widely below due to the eye recession. The pile of the occiput is short, fine and scanty below, absent above, where there are 4 pairs of slender bristles, with 3 others between the eye margin and the ocelli. The proboscis is short, obtusely rounded apically, subcylindrical from the dorsal aspect and gradually swollen towards the base, and generally directed straight forward; the apex and the base have a few fine hairs. Palpus composed of two minute segments, the second nonporate and carrying 1 or 2 fine hairs below, none at apex.

The antenna attached at the middle of the head; antenna long and slender, but shorter than head; the first and second segments are of nearly equal length, the third tapers from near its base to its apex, where it bears 2 microsegments held at oblique angle; the first microsegment is short, the second segment is 2 or 3 times as long and carrying an apical, spinous bristle, which is as long as the first microsegment. The pile of the first and second segments is reduced to 1 to 3 short, slender, bristly hairs.

Head, anterior aspect: The face below the antenna is only one-seventh the head width and divergent below to one-fourth the width. Subepistomal area large, long and oblique, nearly as long as the face. The face is everywhere pubescent, apilose, the epistomal margin with about 5 pairs of fine, slender, moderately long bristles. The front is pollinose, very greatly expanded to the vertex, which is more than half as wide as the head. There is virtually no excavation of the vertex; the small ocellarium is low, no higher than the lateral ocellus and bears a pair of stout, anteriorly curved bristles between the posterior ocelli. Anterior eye facets extraordinarily enlarged in both sexes.

Thorax: The thorax is appressed micropubescent, the metanotal height is half its length. The pile of the mesonotum is scanty, rather fine, long and bristly, and not differentiated. In the type of genus the following complement of bristles is present: 2 long, slender but prominent notopleural, 1 supraalar, 1 weak postalar, 3 or 4 pairs of fine, short bristles on the scutellum, and 2 long prescutellar bristles. Scutellum, flat, densely pubescent. Propleuron with little or no pile except a few fine hairs on the collar; upper mesopleuron with a single fine hair; metapleuron with 4 long, fine bristly hairs; remainder of pleuron pubescent only. The metanotal slopes are micropubescent only; lateral metasternum and the narrow ventral metasternum chitinized and apilose; postmetacoxal region completely chitinized and pubescent; tegulae micropubescent only. Prosternum not dissociated.

Legs: The femora are comparatively stout and short, the hind pair slightly dilated distally. In the type of genus the pile is everywhere quite short and more or less appressed. Hind femur with 2 well developed apical bristles, an anterodorsal and a dorsomedial; its tibia with 3 minute, dorsal basal bristles and 1 or 2 lateral, also on the basal half, but with a long, conspicuous bristle dorsolaterally just beyond the middle, 1 nearly opposite ventrolaterally, and a third laterally a short distance back from the apex. Middle femur with similar apical bristles, 1 well developed anterodorsal at the apical fifth, and 1 posteriorly closer to the apex; its tibia with 5 or 6 fine dorsal bristles, 3 long anteroventral and a like number of posteroventral bristles, all oblique, stout and attenuate. Anterior femur with 2 dorsal bristles, one near the apex, one anterodorsal at the apex, and a third opposite and posterodorsal; its tibia with 3 or 4 quite minute dorsal bristles scarcely noticeable but with 4 conspicuous, stout, attenuate posteroventral bristles. No spine. The bristles of the first two tarsal segments are well developed. All tarsi end in sharp, slender claws, well developed pulvilli, and a fine empodium.

Wings: The wings are comparatively slender, attenuate basally. Marginal cell widely open but the second vein ends some distance back from the apex and the subcostal vein ends still further and opposite the anterior crossvein. All of the posterior cells widely open, the third completely eliminated, so that only four cells are present. The anterior crossvein lies quite far toward the base of the discal cell and the subcosta ends opposite to it. The discal cell appears to end with one vein, the second basal cell with three, the anal cell is closed with a long stalk. The alula is absent; ambient vein complete.

Abdomen: The abdomen is slender, but not quite as wide as the mesonotum, somewhat flattened, with nearly parallel sides on the first four or five tergites. Male with eight well developed tergites, the last being about as long as the seventh. Female with eight tergites, the eighth a little longer than the seventh. Pile of abdomen rather abundant, delicate, fine, erect, and scarcely longer laterally. Sides of the first tergite with 2 or 3 fine, bristly hairs. Male terminalia conspicuous, elongate, not rotate. Epandrium of the ninth tergite notched apically but not split. The epandrium is prominent, turned strongly downward and armed laterally, as in *Stichopogon* Loew, but shorter and less sloping posteriorly; not pollinose. Proctiger similar to *Stichopogon.* Gonopod elongate, tightly apposed to lower edge of epandrium. Hypandrium with deep sulcus reduced almost to nothing in the middle. Eighth sternite reduced to a mere line in the middle. Female terminalia with 4 pairs of long, conspicuous, slender, apically blunt, spoonlike spines. Ventral plate protrusive, more or less pinched together and split to near the base.

These small flies can be found frequenting low growing grass and herbs of sandy areas quite close to the margin of shallow streams.

Distribution: Nearctic: *Townsendia niger* Back (1909); *pulcherrima* Back (1909).

Neotropical: *Townsendia argyrata* Curran (1926); *fiebrigii* Bezzi (1909); *minuta* Williston (1895); *podexargenteus* Enderlein (1914).

Tribe Stenopogonini

In this tribe are assembled all the higher Dasypogoninae, whose front tibiae lack apical spines, and whose females have spines on the acanthophorites. It is a larger group than the Dasypogonini and contains about 75 genera. It contains 3 genera, which are quite large in terms of species; these are *Stenopogon* Loew, *Cyrtopogon* Loew, and *Microstylum* Macquart. The accompanying key differentiates the genera of this tribe.

KEY TO GENERA OF STENOPOGONINI

1. Anterior tibia never with protuberance or spine at apex; marginal cell always open. Female terminalia always with acanthophorites and spines. Male terminalia with or without rotation. Lateral slopes of the metasternum always with pile. Prosternum characteristically dissociated (stenopogonini) 2
   Anterior tibia always with spine, or protuberance and spine at the apex. Marginal cell always open. Female terminalia always with acanthophorites and spines. Male terminalia always rotate. Lateral slopes of metasternum with pile. Prosternum dissociated . . . Dasypogonini
2. Metanotal callosity always with pile or bristles . . . 3
   Metanotal callosity pollinose or micropubescent only, never with pile or bristles 9
3. First posterior cell closed with a long stalk 4
   First posterior cell open 5
4. Upper occipital bristles often excessively long; scutellum and mesonotum with numerous, very long, stout bristles. Proboscis slender. Anterior femur and tibia with especially dense brushes of coarse, reddish bristles and bristly pile; brownish orange flies . . . . Daspletis Loew
   Mesonotum with dense, long, coarse, bristly hairs or slender bristles. Proboscis long, quite stout and robust. Vein closing fourth posterior cell transverse to this cell. Dioctobroma, new genus
5. Base of second posterior cell strongly expanded anteriorly and often narrowly connected to the apically narrowed, discal cell; proboscis extending far beyond the face; face generally with a shallow, transverse depression on the lower third 6
   Base of second posterior cell not greatly expanded anteriorly; this cell widely attached to the end of the discal cell; proboscis long or short; face strongly gibbous, abrupt above; transverse depression absent 8
6. Midtibia with an apical lobe; large flies of robust form and short obtuse, tapered abdomen . Mimoscolia Enderlein
   Midtibia without lobe, with stout, spinous bristles only; large to very large flies, stout, yet of a more slender aspect 7
7. Third antennal segment with numerous, strong, dorsal setae. Epiblepharis (subgenus) Bezzi
   Third antennal segment bare or with 1 or 2 minute setae (including *Eclipsis* Bezzi) . . Microstylum Macquart
8. Proboscis short, extending scarcely beyond the face; basalare pubescent only . . . . . Oratostylum Ricardo
   Proboscis long, rather attenuate near the apex; basalare with several, distinct bristles; palpus short and robust. Neodysmachus Ricardo
9. Postmetacoxal area with a complete chitinized arch; small, weak, brownish yellow, pollinose flies with all posterior cells widely open; anterior tibia without spur. Pulvilli well developed; if pulvilli absent, see *Psilinus* Wulp. Rhabdogaster Loew
   Postmetacoxal area membranous 10
10. Antenna with a plumose style; very small, bare, pale, pollinose, slender flies with strongly hump-backed mesonotum; face short, largely plane, carrying a radiating tuft of fine hairs; head broad, wide, short, flattened; no tibial spur . . . . Oligopogon Loew
    Antenna without a plumose style 11
11. Middle tibia with at apex a pair of stout, spinelike bristles, directed more or less rectangularly backward. Callinicus Loew
    Middle tibia with only strong, distally turned bristles, or rarely with a straight, spinelike bristle 12
12. Head with interocular space (face) very wide below, strongly, and progressively narrowed to the vertex; elongate, slender flies 13
    Head with interocular space (face) wide or narrow, the sides approximately parallel, at most slightly convergent or divergent; tibial spur present or absent 15
13. Pulvilli well developed 14
    Pulvilli atrophied (Leptogastrinae), Acronyches Williston
14. Face and occiput inflated, protuberant; the face quite convex; subepistoma nearly horizontal. Proboscis not extended beyond face. Antenna elongate; third segment with broad, short, microsegment having a spoonlike depression and spine . . . Cystoprosopa, new subgenus
    Face and occiput not inflated; face plane or very slightly convex; subepistoma extensive, oblique. Antenna short or long, the microsegment cylindrical, tapered, with spine at apex . . . . Plesiomma Macquart
15. Face hoodlike, extended in a strongly produced, and rather sharply pointed, ventral beak; that portion above the apex plane . . . . Lycostomus Hermann
    Face never produced into an angulate, ventral, hoodlike beak 16
16. Pulvilli absent or rudimentary and reduced to distinctly less than half the length of claw 17
    Pulvilli well developed 26
17. Claws with an additional, shorter claw or tooth at it base; large flies . . . . Dicranus Loew
    Claws simple 18
18. Face plane and on the upper half plane with the eye; head narrow, nearly circular in anterior aspect, the face exceptionally narrow; bristly flies of medium size, with the posteroventral occiput extensively recessive. Galactopogon Engel
    Face not plane and head not circular 19
19. Pulvilli about one-fourth to one-fifth as long as claws; antenna attached at the middle of head; abdomen more elongate than in *Sisyrnodytes* Loew; mesonotum not at all humped; pile or bristles confined to the lower half of face; proboscis distinctly extended beyond the face. Theromyia Williston
    Pulvilli absent or with minute stubs 20
20. Second submarginal cell rectangular at base, with a long, appendicular vein. Dorsocentral bristles and all mesonotal and scutellar bristles stout and exceptionally long. Metapogon Coquillett
    Second submarginal cell emerges gradually and after the usual pattern 21
21. Eye in profile distinctly wider ventrally than dorsally; first and second antennal segments with exceptionally long, stout bristles ventrally, more rarely dorsally . 22
    Eye in profile not wider below and usually more narrow 23
22. First posterior cell open; fourth posterior cell usually open; the postmarginal veins reach the wing margin; second submarginal cell usually with a basal spur; the ambient vein ends at the anal cell . . Acnephalum Macquart
    First and fourth posterior cells closed; postmarginal veins evanescent; second submarginal cell without basal spur; ambient vein absent . . . . . . Sisyrnodytes Loew
23. Posteroventral margin of eye extensively recessive . 24
    Posteroventral eye margin not unusually recessive; lower occiput not greatly developed . . . Mecynopus Engel
24. Mesonotum with a mane; face strongly convex-gibbous, with exceptionally long, dense, fine pile. Anarolius Loew
    Mesonotum without mane; face not unusually gibbous and densely pilose 25
25. Pile of face abundant, sometimes matted and tectiform. General pile either coarse or scalelike. Small, rather slender flies, partly pollinose, partly shining; many species pale in color . . . . Ablautus Loew
    Pile of face restricted to a few, slender bristles on the lower half, stronger above the epistoma. Slender, pale, pollinose flies, never with scales . . . . Psilinus Wulp

26. Four posterior cells; small, pollinose flies, usually with bare and polished areas . . . . Itolia Wilcox

Five posterior cells 27

27. Third antennal segment slender and much longer than the head and bearing 2 large, conspicuous microsegments; large flies usually with numerous, opaque, pollinose areas 28

Third antennal segment never with expanded and swollen, or lengthened microsegment; microsegments always small and reduced in size 29

28. Second microsegment nearly as long as the third segment and longer than first and second segments combined; this microsegment densely short plumose. Ceraturgus Wiedemann

Second microsegment short, plane above, expanded below and distinctly wider than the third segment, its length much less than the third segment. Ceraturgopsis Johnson

29. Proboscis exceptionally short, stout, bluntly pointed and directed downward with the apex curved posteriorward; vertex not excavated, the ocellarium low or moderately high; bristles in general reduced but anterior basalare with a patch of bristles or bristly hairs. Ancylorrhynchus Latreille

Proboscis straight, long or short; apex usually more or less attenuate; vertex generally distinctly excavated . . 30

30. Head from the anterior aspect distinctly narrow, the whole presenting a nearly circular appearance; face in consequence narrow; antenna elongate and comparatively slender and but little flattened; third segment with 1 or 2 microsegments, the second always attenuate and usually longer than the first. Face usually with numerous, strong bristles and very little ordinary pile. Gena well developed beneath the eye. Fourth posterior cell usually closed and stalked, sometimes open and narrowed 31

Head from anterior aspect distinctly wider than high; not circular in aspect. Antenna generally less elongate and slender 36

31. Anterior femur having ventral surface with an extensive patch of dense, stout bristles; base of femur sometimes swollen . . . . Goniosceles Schiner

Anterior femur with only the usual complement of bristles 32

32. Third antennal segment 2 or 3 times the combined length of the first 2 segments, with short, fused, spoonlike microsegment, or with the third segment widened and dilated through the middle . . . . Ospriocerus Loew

Third antennal segment 1 or 2 times as long as first and second segments combined; apex with cylindrical microsegment 33

33. Face not at all gibbous; that portion visible ventrally due to the posterior recession of the eyes; second microsegment of antenna attenuate to a fine point. Rhacolaemus Hermann

Face distinctly prominent below, the extended portion plane or slightly curved, but reaching upward from one-half to three-fourths of the face 34

34. Metapleuron without pile or bristles . . Stenopogon Loew

Metapleuron with bristles or pile, or both 35

35. Eye strongly recessive posteroventrally; 1 or 2 microsegments present, the second long and attenuate. Face gibbosity beginning above the middle of the face. Scleropogon Loew

Eye not recessive posteroventrally; 1 microsegment with apical spine; face gibbosity beginning at middle of face; upper part of face with stiff, abundant hairs. Upper posterior mesopleuron densely pilose. Male terminalia always strongly rotate and always with a well developed, elongate (dorsal) hypandrium; posterior coxa with an anterior process in both sexes . Neoscleropogon Malloch

36. Fourth posterior cell closed and usually stalked, rarely closed in the margin or quite narrowly open 37

Fourth posterior cell open and usually widely open; never closed 50

37. Ventral surface of middle femur with an anterior patch of dense, short, stout bristles; wings have fourth posterior cell narrowly closed with short petiole 38

Ventral surface of middle femur with at most 1 or 2 rows of regularly spaced bristles 39

38. Antenna large, the third segment swollen through the middle; bristles of face strong; palpus longer than face; proboscis with ventral bristles in the middle. Subcostal cell with several supernumerary crossveins. Prolepsis Walker

Antenna slender and of uniform width; face bristles weak; palpus shorter than face. Proboscis without bristles in the middle below. No supernumerary crossveins present. Sphageus Loew

39. Face densely beset with bristles or with bristly hairs on at least the lower half and usually such bristles extend upward nearly to the base of the antenna 41

Face with bristles or pile or both confined to a narrow band immediately above the epistoma, leaving the greater part of the face conspicuously bare 40

40. Face with a single bristle row above epistoma. Third antennal segment long, slender, without microsegment, spine-tipped and often attenuate distally; this segement with conspicuous, dorsal bristles. Large or very large flies. Archilestris Loew

Face quite plane in profile; in addition to the epistomal bristles there are sometimes a few, scattered bristles on the lower part of face. Third antennal segment rather short, plane above, without bristles, dilated or swollen below. Small or medium size flies. Alyssomyia, new genus

41. Face below antenna plane with eye for a short distance, then abruptly and greatly produced into a prominent gibbosity, densely bristly and with abrupt, dorsal shelf or ledge. Small, blue black flies, including the wings. Occiput and vertex strongly developed; proboscis not longer than face . . . . Teratopus Loew

Face and occiput and vertex differently constructed; proboscis longer than the head 42

42. Third antennal segment quite long, distinctly longer than head, slender, without dorsal bristles, bearing an oblique, apical, spoon-shaped microsegment enclosing a spine 43

Third antennal segment shorter, as long as the head; but if longer than the head, never slender; apex always with cylindrical, attenuate, spine-tipped microsegment . . 45

43. Acrostical bristles absent or reduced to minute setae. Proboscis without dorsal ridge, except near the base. Base of third abdominal segment constricted. Male terminalia dorsally with a medial process. Scutellum with 1 pair of long bristles . . . Cylicomera Lynch Arribálzaga

Acrostical bristles well developed. Proboscis with medial ridge. Abdomen nowhere constricted; scutellum with 2 or more pairs of long bristles 44

44. Abdomen stout basally, tapered to the apex. Tolmerolestes Lynch Arribálzaga

Abdomen cylindroid with parallel sides . Dizonias Loew

45. Face gently convex, densely long pilose and third antennal segment elongate, distinctly wider than the second segment. Occiput tumid and well developed behind vertex. Fourth posterior cell usually open, sometimes greatly narrowed, or closed . . . . Spanurus Loew

Antennal length and head length nearly equal. Third segment if swollen never greatly lengthened. Occiput reduced dorsally and behind the vertex 46

46. Face quite plane and, except for the supraepistomal mystax, very few bristles present. Third antennal segment rather short, plane above, strongly swollen or widened below. Alyssomyia, new genus

Face short beneath the antenna, distinctly gibbous and produced below and beset with dense pile or bristles or both.

Third antennal segment slender or at most slightly wider than the second segment 47

47. Anal cell closed with a rather long stalk 48

Anal cell open 49

48. The second vein and anterior branch of third vein end close together, far above wing apex; proboscis longer than face; third antennal segment never greatly enlarged. Bathypogon Loew

The anterior branch of third vein ends near apex of wing; third antennal segment greatly swollen; proboscis not longer than face . . . . . . Pritchardia Stuardo

49. The anterior branch of the third vein branches at the end of the discal cell . . . . Zabrotica Hull

The anterior branch of the third vein branches beyond the end of the discal cell . . . Creolestes, new subgenus

50. Eye reduced in extent; front and face strongly produced; face with a deep crease situated shortly below the frontal antennal process; face densely beset with long, stiff pile. Area below the eye (gena) and the occiput unusually extensive owing to the reduction of the eye. Antenna much longer than the head, slender throughout. Anterior branch of third longitudinal vein with a spur near the base . . . . Hystrichopogon Hermann

Eye normal in extent. Face and antenna not so constructed. Appendicular vein absent 51

51. Small flies with aberrant antenna and short, convex face bearing loose, quite long pile; bristles absent. Third antennal segment wide apically with 2 prominent microsegments of the same width and each as wide as high. Pseudoholopogon Strobl

Flies without such antennal characteristics 52

52. Antenna elongate, usually longer than the head. Third segment long and distinctly wider than the second segment throughout most of its length. Occiput prominent and tumid dorsally. Vertex scarcely excavated or plane with eye margin 53

Antenna usually not longer than head, or if of greater length the third segment never wider than the second 56

53. Face with no pile and bristles reduced to a single row or small cluster above epistoma 54

Face with abundant pile or bristles 55

54. Antenna more than twice the length of head. Pronotum unusually long; transverse mesonotal suture not evident. Face very high, the front quite short with antenna attached near the upper plane of the head. Medium-size and small flies. Bicolored species, black with red thorax as in the bibionid *Plecia* Wiedemann. Pile and bristles reduced but epistomal bristles stout and situated in 1 row. Apex of proboscis simple . . Macrecolus Engel

Antenna not more than 1½ times the length of head. Not so colored. Medium size flies, orange brown in color with a small cluster of supraepistomal bristles. Apex of proboscis fissiform . . . . Neodioctria Ricardo

55. Face distinctly convex and densely pilose over the whole surface. Mesonotum, whole of scutellar disc and margin, and abdomen densely, long, fine pilose; comparatively small flies. Fourth posterior cell usually considerably narrowed . . . . Spanurus Loew

Face plane, or gibbous below; bare on the upper half. Lower part of face with pile or weak bristles. Comparatively short pilose, relatively bare and usually opaque pollinose flies; small to moderate in size . . 55a

55a. Third antennal segment long and rather wide, tapered only near immediate base and apex. Palpus small, slender, rather bare. Scutellum with 1 or 2 pairs of bristles and sometimes with 1 or 2 bristly hairs as well. Fourth posterior cell generally narrowed to half its maximal width . . . . Scylaticus Loew

Third antennal segment long but slender, not wider than the second segment. Palpus quite large, long, swollen with long, dense bristles. Whole posterior margin of scutellum with an extensive, dense fringe of long bristles and bristly hairs. Fourth posterior cell open in its maximum width . . . . Pycnomerinx, new genus

56. Small, dark flies with quite short, convex face scarcely visible beyond the eye margin in profile and distinguished by dense, fine, white pile of the face, thorax, sides of abdomen and the sternites. Antenna slender, the third segment and its microsegment attenuate 57

Flies of loose pile with bristles intermixed, or only with bristles; face more prominently developed 58

57. Face one-third of the head width and pile of front and occiput exceptionally long . . . . . . Eriopogon Loew

Face one-fourth the head width or less. Pile of front and occiput not unusually long . . . . Jothopogon Becker

58. Third antennal segment strongly dilated distally or throughout the base or middle portion 59

Third antennal segment without dilation; usually not wider than the second segment 61

59. Third antennal segment dilated strongly on the distal half; face very short beneath antenna. Proboscis distinctly extended beyond the face 60

Third antennal segment strongly dilated through the middle. Face immediately produced beneath the antenna. Two microsegments and a spine present. Proboscis no longer than the face . . . . Cycloscerus Bezzi

60. Occiput with numerous, stout bristles, strongly proclinate dorsally . . . . Hypenetes Loew

Occiput with only fine, stiff hairs. Tillobroma, new subgenus

61. Third antennal segment very slender and elongate; its apex clublike and bearing a subapical spine; male anterior femur at base with large, hamate process; densely long, fine, pilose flies with very convex face, dense, mesonotal mane and laterally compressed abdomen . Oldroydia Hull

Third antennal segment never exceptionally slender; and also with its apex clublike and bearing a subapical spine 62

62. Eye high and short, the face short but convex; the entire head densely, long, fine, pilose. Supraepistomal region with bristles. Third antennal microsegment with a plumose tuft of hairs . . . . Crobilocerus Loew

Third antennal microsegment without tuft 63

63. An additional crossvein present regularly, extending from basal part of third vein to the fourth vein; as a result, 2 crossveins enter the discal cell in front. Grypoctonus Speiser

Only the normal, anterior crossvein present 64

64. Face quite plane from antenna to epistoma. Face with a single row of short, epistomal bristles and a small patch of medial, weak bristles on the lower part of face. Occipital bristles proclinate, including the lower bristles. Harpagobroma, new genus

Face not plane 65

65. Flies in which the third antennal segment is elongate and slender, attenuate at apex and bears 1 or usually 2 slender, attenuate microsegments; flies frequently of dense, long pile 66

Third antennal segment stout, at most slightly narrowed at the immediate apex; microsegment single, short, stout, often small; flies sometimes pollinose, of rather small size and reduced pile but abundant bristles 77

66. Face but little developed, but distinctly plane, rising a little immediately below the antenna and plane to oral margin, the whole of it covered with distinctly bristly pile of no great length, and no stout bristles below at the oral margin. Apex of midtibia with at most 1 somewhat stiffer bristle. Hind tibia conspicuously thickened throughout its length. Anal cell quite widely open. Mesonotum arched and compressed. Scutellar margin and disc with abundant, coarse, or slightly bristly pile. Anterior crossvein enters the discal cell at the middle; the third vein forks opposite the end of the discal cell. Metallic flies . . . . Sintoria, new genus

Not such flies, the face either extensively produced and gibbous, with long, fine, dense pile or if the face is short, the gibbosity is confined to the lower half of the face, not extending to the antenna 66A

66A. Face extensively produced and gibbous. Densely long, fine pilose flies 67

Face short but distinctly convex; if produced, the swelling is developed ventrally and not extending to the upper face 70

67. Costal cell on the outer half greatly narrowed. Abdomen compressed laterally. Males with hamate process at base of anterior femur; mesonotum with a mane. Toremyia Hull

Anterior margin of wing normal. Abdomen never compressed laterally. Processes absent 68

68. Third vein of wing branched before or opposite discal crossvein; anterior crossvein situated well beyond the middle of the discal cell. Third antennal segment broadest basally, tapering apically. Scutellum with fine, discal pile; margin with numerous, long bristles. Densely pilose flies. Middle tibia at apex with a pair of contrastingly stout, isolated bristles, 1 element of the pair often black . . . . Eucyrtopogon Curran

Third vein branched well beyond the discal crossvein; anterior crossvein usually at or before the middle of the discal cell, rarely placed slightly beyond the middle of this cell. Third antennal segment generally broadest at or beyond the middle. Scutellum pilose on base, with strong, short, marginal bristles 69

69. Scutellum bare, with short, strong, marginal bristles. Dorsocentral bristles usually present. Comparatively bare, small flies with abdomen in part pollinose and the face less conspicuously and only moderately produced. Middle tibia at apex ventrally with 5 stout bristles. Nannocyrtopogon Wilcox and Martin

Scutellum with long pile and sometimes a few, apical bristles intermixed. Dorsocentral bristles absent. Tergites usually with pollinose bands. Flies of extensive, long, comparatively dense pile . . . Cyrtopogon Loew

70. Face short throughout. Face and vertex with fine pile only; bristles absent. Apex of middle tibia with a stout, straight, spinous bristle. Small, slender flies with narrow, cylindroid abdomen; comparatively bare flies, the abdomen with pollinose markings 71

Face with stout bristles or if absent, the middle tibia lacks a distinct, segregated spine 72

71. Face with dense, fine pile of distinctly bristly character. First and second antennal segments each with 1 or 2 pairs of characteristic, long, stout, but blunt bristles. Mesonotum with fine, rather long, erect pile. Backomyia Wilcox and Martin

Face with loose, fine pile. Basal antennal segments with only fine, normal, curved, bristly hairs. Mesonotum with fine, long, distinct, dorsocentral bristles . Wilcoxia James

72. Mesonotum rather strongly humped; face usually gently convex, with much fine pile and a few scattered bristles; very small, dark flies and usually fine, long, densely pilose. Hind metatarsus distinctly enlarged and swollen, at least contrastingly stout and robust. Hind tibia usually distally swollen also. Flies of 5 or 6 mm. length, more rarely 8 to 10 mm . . . . . Holopogon Loew

Flies without swollen, posterior basitarsus 73

73. Eye exceptionally narrow above and below. Abdomen moderately elongate but broad and more or less flattened, and basally nearly as wide as the mesonotum; lateral margins of abdomen densely pilose, the middles of tergites often quite bare, with greatly reduced pile. Pycnopogon Loew

Eye of normal length above and below. Abdomen more slender without conspicuous, lateral fringes of pile . 74

74. Third antennal segment and its style or microsegment unusually slender and regularly attenuate from the base of the segment 75

Third antennal segment of nearly the same width throughout or slightly narrowed distally 76

75. Second antennal segment less than half as long as the third segment; microsegment or style long and pointed. Face wide . . . . Heteropogon Loew

Second antennal segment longer; style short and less pointed. Face more narrow and quite plane, the pile loose and weak. Abdomen narrow with fine pile; quite small flies. Anisopogon Loew

76. Mesonotum high, strongly arched with numerous, conspicuous, long, stout, dorsocentral and shorter, fine acrostical bristles present. Third vein (usually) branched before the discal crossvein and with a distinct stump vein; base of second submarginal cell subtruncate or rectangular. Face wider, bristles weak, situated chiefly below. Vertex with 2 pairs of long, stout bristles. All femora slender, the hind pair with only a medioapical tuft of bristles. Metapogon Coquillett

Mesonotum of normal height and moderately convex. Third vein branched beyond the discal crossvein. Face with numerous, exceptionally stout bristles. Face pile generally absent; third antennal segment robust. Coleomyia Wilcox and Martin

77. Face with numerous, stout bristles; pile absent; face becomes more prominent toward the epistoma. Occiput undeveloped dorsally . . . . . Coleomyia Wilcox and Martin

Face with numerous, long, stiff hairs and slender bristles or the occiput tumid above 78

78. Occiput expanded and swollen dorsally, thick and prominent throughout the posterior portion of head; face usually with numerous, long bristles; palpus large, swollen; proboscis pointed at apex . . . . Habropogon Loew

Occiput undeveloped above; palpus small; proboscis usually robust but short and bluntly pointed, or rounded at apex. Usually small, short, pollinose-marked flies, but occasionally long and slender 79

79. Short, obtuse, small flies with partly pollinose, partly bare head, thorax and abdomen. Whole face more or less pilose with more bristly pile below. Anal cell closed or closed in the margin. Tarsal segments short, their bristles conspicuous but short . . . Amphisbetetus Hermann

Long and rather slender, black flies wholly covered with pale whitish pollen. Only the lower half of face with bristles and pile. Anal cell widely open. Tarsal segments quite long, their bristles long and conspicuous Graptostylus, new genus

Genus *Stenopogon* Loew

Figures 126, 447, 449, 894, 901, 903, 910, 1775, 1817, 1938

Stenopogon Loew, Linnaea Entomologica, vol. 2, p. 453, 1847. Type of genus: *Asilus sabaudus* Fabricius, 1794. Designated by Coquillett, 1910, the last of six species.

Flies of basally stout, elongate, tapered abdomen, in which the pile is reduced and the bristles are numerous and strong. They are largely short pilose and bare in appearance. The head from the frontal aspect is circular, the metapleuron is micropubescent only. This is the only firm character separating the members of the genus from *Scleropogon* Loew; in that genus the metapleuron has some long pile or bristles, usually in abundance. The third antennal segment, the microsegment excluded, rarely reaches twice the length of the first two segments. Anterior tibia without spine. Male terminalia not rotate. Base of wing in males often whitish. The flies range from quite small to large in size in most species. Length in most species about 25 mm. Length 11 to 35 mm.

Head, lateral aspect: The head is long. The eye is narrowed below. The face for a short distance beneath the antenna is usually nearly plane with the eye. The face on the lower portion is quite prominent and generally arises abruptly from the flat, short portion above; cheeks prominent. The occiput is thick throughout, with abundant, coarse pile below; weak bristles begin near the middle of the head and form a sublateral band of several rows, becoming quite numerous above. Postvertex on either side with a patch of 7 or 8 stout bristles. The proboscis is stout, tapered at the apex on the ventral part, extended well beyond the face, and with a prominent carina. Palpus of two segments; the first is hemicylindrical and excavated, the second short, quite robust, often curved, with an apical pore, and bristly pile. The antenna is attached near the upper third of the head, approximately as long as the head and usually slender. The first segment is a little longer than the second, both with stout, short, ventral bristles. The third segment, excluding microsegment, is 1¼ to rarely twice the length of the first two segments combined; third rarely wider than the second segment at any point; it is usually gently and slightly attenuate, occasionally with an angular dilation near the middle in species which approach *Ospriocerus* Loew. Third segment with two microsegments, the first of them short, but distinct, the second long, of variable length, attenuate, and spine-tipped.

Head, anterior aspect: Face pubescent, the cheeks often largely or wholly bare. Flat upper portion of face generally with a few short, weak bristles or bristly pile. Middle of the face on the lower gibbous portion with a large triangle of numerous, long, stout bristles and occasionally some bristly hairs. Head about as wide as high, nearly circular; the face is narrow at the antenna, ranging from one-tenth to one-seventh or one-sixth the head width, and strongly divergent below. Front rather long, slightly divergent along the eye margins, with a row of stout bristles and some bristly pile. The front is pollinose and shallowly sunk in the middle, sometimes with additional, submedial pile. Vertex scarcely excavated at all, the ocellarium large, but comparatively low with on either side 2 to 5 pairs of bristles and 3 to 7 pairs behind. Anterior eye facets only a little enlarged.

Thorax: The mesonotum is comparatively high, steeply sloping behind, still more anteriorly. It is thickly covered widely over the whole surface with subappressed, short, bristly pile; acrostical bristles not differentiated; dorsocentral bristles differentiated only on the posterior half, where there may be from 4 to 8 rows, or there may be a broad band of several irregular rows of rather stout bristles for the whole medial third; this band may continue at reduced length to the anterior margin. The lateral complement of bristles includes: 3 to 7 stout humeral, 1 to 10 posthumeral, 2 to 6 notopleural, 2 to 7 supraalar, 2 to 7 suprapostalar, 2 to 12 postalar, 3 to 5 scutellar pairs. Metanotal callosity micropubescent only; scutellum usually micropubescent only, thick, rather convex, with an occasional scattered hair. Pronotal collar with stout bristles. Lateral pronotum usually with numerous, stout bristles, sometimes with only stiff pile. Lateral propleuron densely pilose; prosternum dissociated; mesopleuron only with micropubescence except in rare instances where posteroventrally there are a few hairs. Upper sternopleuron with a characteristic patch of numerous, fine, or stiff pile, sometimes reduced in the small species to 3 or 4 fine wisps of pile. Metapleuron never with pile or bristles; lateral metasternum likewise without pile or bristles. Postmetacoxal area membranous.

Legs: The femora are stout, only the anterior and middle pairs being slightly or moderately swollen toward the base. Pile on both femora and tibiae dense, appressed, rather short and setate. Bristles are exceptionally numerous, stout, but relatively short throughout. On the hind femur are 7 lateral, in the smaller species 4, and 10 ventrolateral bristles, or as few as 5; the apex ventrolaterally has a transverse cluster of 3 to 5. In small species bristles are scarcely more than setae; these have the medioapical bristles of 2 stout elements; the larger species have 5 stout elements, 1 prominent dorsomedial bristle at the subapex. Hind tibia with 2 to 6 dorsomedial, 3 to 7 dorsolateral bristles, and a like number of ventrolateral bristles. Middle femur with 4 or 5 anteroventral, 5 to 10 ventral bristles, at least 1 stout posterior bristle on the outer fifth, and 2 to 4 stout anterior bristles. Anterior femur with 2 to 4 posterior bristles; 7 to 10 ventral bristles often doubled or trebled by additional rows. On the middle and anterior tibia the smaller species have 4 bristles in each of the principal rows and 2 in the ventral row, whereas the larger species have at least 5 and usually 6 or 7 bristles in these rows. Protibial apex without spine, all apical bristles removed from the apex. Tarsi end in stout, sharp claws, well developed pulvilli, and a bladelike empodium.

Wings: The wings are elongate, generally tinged with brown or yellow to a slight but varying degree. Marginal cell open, slightly narrowed; anterior branch of third vein ends above the wing apex, posterior branch a somewhat greater distance behind. In the type of genus and many other species the first posterior cell is widely open, at most a little narrowed, but in a few species it may be even closed and petiolate. In *Stenopogon heteroneurus* it has a long stalk and in addition the second posterior cell is divided into 2 parts by an extra crossvein. The fourth posterior cell is usually closed and stalked, sometimes closed in the margin, or even open. Anal cell open or narrowly closed. Alula large; ambient vein complete.

Abdomen: The abdomen is broad at the base but not quite as wide as the mesonotum; it is rather strongly tapered and elongate. The sides are generally curled and quite convex, the whole subcylindrical. The pile is abundant but short, appressed and setate, becoming a little longer on the sides of the first tergite. First tergite with a large, oval patch of bristles, the posterior row sometimes stouter. Second tergite near the middle laterally with a tuft of bristly pile and sometimes bristles. Males with 8 tergites, the eighth being from one-third to one-sixth as long as the seventh. Females with eight tergites, the last being nearly half as long as the seventh. Male terminalia not rotate, the epandrium widely divided nearly to the base forming rather prominent superior forceps. Gonopod large but not quite as long as the upper forceps. Hypandrium varying from a short, broad, basal plate to a long, triangularly produced process. Genital cavity largely open. Females with 7 pairs of stout, long, blunt spoonlike spines on the acanthophorites.

Stenopogon is a dominant genus in the Holarctic region with the known species nearly equally divided between the two hemispheres. Several Australian species described in this genus almost certainly should be transferred to *Neoscleropogon* Malloch; they are left here in *Stenopogon* until studied.

Distribution: Nearctic: *Stenopogon albibasis* Bigot (1878); *andersoni* Bromley (1937); *arizonensis* Bromley (1937); *boharti* Bromley (1951); *breviusculoides* Bromley (1937); *breviusculus* Loew (1872); *californiae* Walker (1849); *californioides* Bromley (1937); *cazieri* Brookman (1941); *coyote* Bromley (1931); *engelhardti* Bromley (1937); *felis* Bromley (1931); *floridensis* Bromley (1951); *gratus* Loew (1872) [=*univittatus* Loew (1874)]; *huachucanus* Hardy (1942); *inquinatus* Loew (1866); *jubatoides* Bromley (1937); *jubatus* Coquillett (1904); *martini* Bromley (1937); *modestus* Loew (1866); *morosus* Loew (1874); *neojubatus* Wilcox and Martin (1945); *nigritulus* Coquillett (1904); *nigriverticellus* Bromley (1937); *obscuriventris* Loew (1872); *propinquus* Bromley (1937); *rufibarbis* Bromley (1931); *rufibarboides* Bromley (1937); *stonei* Bromley (1937); *timberlakei* Bromley (1937); *tinkhami* Bromley (1951); *utahensis* Bromley (1951); *wilcoxi* Bromley (1937).

Neotropical: *Stenopogon fuscolimbatus* Bigot (1878); *lugubris* Williston (1901).

Palaearctic: *Stenopogon albociliatus* Engel (1929); *aphrices* Walker (1849) [=*aphrisus* Wulp (1899) *lapsus*]; *arabicus* Macquart (1838); *avus* Loew (1874): *brevipennis* Wiedemann in Meigen (1820); *callosus* Pallas in Wiedemann (1818); *cinereus* Engel (1940); *coracinus* Loew (1847), *coracinus carbonarius* Engel (1929); *costatus* Loew (1870), *costatus escorialensis* Strobl (1905); *csikii* Strobl (1901); *echelus* Walker (1849); *elegantulus* Wiedemann (1820); *elongatissimus* Efflatoun (1937); *elongatus* Meigen (1804); *festae* Bezzi (1925); *flavibarbis* Enderlein (1934); *fulvus* Meigen (1838); *gracilis* Macquart (1838) [=*fumipennis* Becker (1913)]; *gruenbergi* Becker (1911) [=*denudatus* Loew (1856) female]; *harpax* Loew (1868); *heteroneurus* Macquart (1838); *imbrex* Walker (1849); *inermipes* Strobl in Czerny and Strobl (1909); *iphippus* Séguy (1932); *iphis* Séguy (1932); *ischyrus* Séguy (1932); *junceus* Wiedemann in Meigen (1820) [=*tanygastrus* Loew (1861)]; *kaltenbachi* Engel (1929); *kocheri* Timon-David (1951); *kolenatii* Gimmerthal (1847); *laevigatus* Loew (1851) [=*bicolor* Bigot (1878)], *laevigatus melanostolus* Loew (1868)], *laevigatus milvoides* Engel (1930), *laevigatus nigripes* Engel (1940); *macilentus* Loew (1861) [=*semitestaceus* Loew (1868)]; *milvus* Loew (1847); *mollis* Loew (1868); *nigriventris* Loew (1868), *nigriventris wolfi* Mik (1887); *ochripes* Loew (1861), *ochripes escalarae* Strobl (1905); *peregrinus* Séguy (1932); *porcus* Loew (1870); *roederi* Bezzi (1895) [=*rufipilus* Loew (1873)], *rufipilus ruficauda* Engel (1930); *sabaudus* Fabricius (1794), *sabaudus fulvulus* Pallas in Wiedemann (1818) [=*occultus* Loew (1861), *pyrrhomus* Wiedemann (1818), *pyrrhous* Schiner (1862)]; *schisticolor* Gerstaecker (1861), *schisticolor mydon* Engel (1930); *sciron* Loew (1873); *strataegus* Gerstaecker (1861) [=*antar* Schiner (1867)]; *superbus* Portschinsky (1873) [=*theseus* Loew (1873) female]: *taboardae* Strobl in Czerny and Strobl (1909); *theseus* Loew (1873) male; *tristis* Meigen (1820) [=*maurus* Mergerle (MS.) in Meigen]; *werneri* Engel (1932); *xanthotrichus* Brullé (1832) [=*graecus* Loew (1855)], *xanthotrichus xanthomelas* Loew (1868) [=*ochreatus* Loew (1847), *?pyrrhus* Loew (1870)].

Ethiopian: *Stenopogon holoxanthus* Hermann (1907); *macquartii* Jaennicke (1867).

Oriental: *Stenopogon ambryon* Walker (1849); *damias* Walker (1849); *nigrofasciatus* Brunetti (1928); *piceus* Roeder (1893); *pulverifer* Walker (1851); *raven* Bromley (1938); *subtus* Bromley (1935).

Genus *Scleropogon* Loew

Scleropogon Loew, Berliner Ent. Zeitschr., vol. 10, p. 26, 1866. Type of genus: *Scleropogon picticornis* Loew, 1866, by monotypy.

Large flies of comparatively slender, tapered abdomen and often reddish, clay yellow or brown color. Abdomen basally as wide as the mesonotum. They are characterized by the circular head from frontal aspect, the absence of protibial spine, the not rotate male terminalia, the short pile but comparatively abundant bristles and specially by the presence of pile or more usually pile and bristles on the metapleuron; this last characteristic appears to be the only conclusive character separating these flies from *Stenopogon* Loew. The flies of *Stenopogon* are much the same size, shape and general coloration but completely lack pile or bristles on the metapleuron. The type of genus is *Scleropogon picticornis* Loew, and it is a California species; the first posterior cell is closed and stalked as it is in *Scleropogon truqui*, *ochraceus*, *helvolus* and other species of this genus, but open in some species as *Scleropogon consanguineus*.

The type of genus *Stenopogon sabaudus*, a southern European species, has the first posterior cell widely open. Of 10 large Asiatic species of *Stenopogon* examined by me, 9 have the first posterior cell closed and stalked; 1 species has this cell half closed. *Scleropogon* as defined by the type of genus appears to be a New World form confined to the western American coast, the Sonoran region and Central America. *Stenopogon*, excepting 1 or 2 species is found in the Palaearctic region, especially southern Europe and in the Oriental region, especially southern Asia and also widely over southern and western North America but concentrated only in the west. Kertész listed 13 species under *Scleropogon* from the Palaearctic; many of these appear to belong to *Stenopogon*, perhaps all of them. The antenna in *Scleropogon* varies from short to long. Length of flies 17 to 35 mm.

Head, lateral aspect: The face is prominent, sometimes unusually protuberant and generally with a small, abrupt or gently sloping ridge a short distance below the antenna. This upper portion of the face is nearly plane with the eye. Eye of moderate length, strongly convex, distinctly more narrow below due to a strong, gradual recession of the eye. Occiput characteristically swollen but chiefly swollen medially, so that it slopes down gently to the eye margin. Pile of occiput dense and bristly and rather long ventrally and replaced by long, coarse pile behind the cheeks, where there is a dense, rather protuberant ledge, which may extend back from the proboscis. Upper occipital pile almost wholly composed of a wide band of bristles extending deep within the medial portion, the more anterodorsal elements stouter. Proboscis long, rather slender, nearly subcylindrical, medial dorsal ridge present or absent; proboscis not swollen toward the base, the apex only slightly narrowed; the apex bears a few, stiff hairs; the base below has some long pile. The proboscis is directed obliquely downward. Palpus with the first segment excavated, the second porate with numerous, ventral, dorsal, medial and lateral bristles.

Head, anterior aspect: The face below the antenna is one-sixth of head width and strongly divergent below. Subepistomal area relatively small, and nearly horizontal, concave and bare. Face micropubescent with numerous exceptionally stout, long bristles extending over the lower three-fourths or more of the face and absent only from the nearly plane portion beneath the antenna, these bristles may extend beyond the proboscis and are curved obliquely downward and there may be a few, short, stiff hairs among them. Antenna attached at or a little above the upper third of the head, elongate and slender, the first segment a little longer than the second. The third segment is 1½ to 2 times as long as the first two combined; it is slightly attenuate and at the apex has two microsegments, the first rather short, the second five or six times as long as the first microsegment, attenuate apically and carrying a distinct, apical spine. These microsegments are usually held at a slight angle laterally. First segment with numerous, stout bristles ventrally, several of which may be as long as the first two segments combined and with shorter ones dorsally. Second segment with 2 or 3 short, stout bristles dorsally and ventrally. Front narrow, slightly wider than the upper face and slightly convergent at the vertex or sometimes of equal width. Characteristically the front has a subocular row of 8 to 12 or more stout bristles; surface pollinose. Vertex very little excavated, the ocellarium large, low and bearing in the middle 1 to 4 pairs of long, stout bristles and sometimes as many more postocellar bristles. Eye facets only a little enlarged.

Thorax: The thorax is pollinose. The mesonotal pile consists of numerous, rather short, subappressed setae which become a little longer posteriorly and behind the humerus. Acrostical elements are undifferentiated but stout dorsocentral bristles may begin behind the humerus. The mesonotal bristles are long and stout. The humeral bristles number 6 to 13. There is a group of 5 to 8 posthumeral bristles. Notopleural bristles consist of 4 to 6 in a transverse row, supraalar with 8 in a longitudinal row or as many as 16 in a single cluster. There may be 8 to 10 postalar bristles and a wide, transverse band of prescutellar elements, besides 4 or 5 pairs of scutellar bristles. All these lateral bristles are exceptionally long and stout. Scutellum convex, pollinose, apilose, fused to the base. Propleuron with abundant, long, fine pile below; similar pile of weak bristles on the coxa. Anterior pronotum with a double row and postpronotum with a very large cluster of numerous bristles. Mesopleuron characteristically without pile or bristles. A conspicuous tuft of rather long, fine hairs is present on the anterior and posterodorsal sternopleuron. Pteropleuron and hypopleuron apilose. Metapleuron always with pile or bristles or both; metanotal slopes pubescent only; lateral metasternum apilose, the ventral metasternum with abundant, long pile, the first tergite always with some pile. Postmetacoxal area membranous.

Legs: The legs are stout without being swollen, carrying an unusually abundant complement of stout, moderately long bristles; the pile is dense, fine, and appressed. The hind femur has the following bristles; 6 to 10 lateral, 8 to 18 ventral, and at the apex laterally an oblique row of 3 to 6 and similar medial row of 6 or 7; sometimes also 2 or 3 bristles medially and subapically. The hind tibia shows 1 to 4 medial, 5 dorsomedial, 4 to 7 dorsolateral, 5 to 9 ventrolateral, the subapex has 9 bristles. Middle femur with 3 to 5 stout, anterior, distributed along the middle, and an oblique apical row anteriorly of 3 or 4; also 1 to 3 posterior, subapical and a double or triple ventral row of 6 or 7 pairs of bristles. The middle tibia has 6 anterodorsal, 6 posterodorsal, 5 or 6 posterior, 4 ventral and 2 anteroventral bristles. The anterior femur has 1 to 3 anterior bristles in the middle, 2 or 3 posterior in the middle or sometimes none, 8 or 9 ventral bristles and then maybe as many as 18 dorsal bristles or none. Anterior tibia with a double dorsal row of 6 to 8 pairs, also 8 stout, long, posterior bristles. Apex of this tibia with stout bristles but no spine. All tarsi end in long, stout, moderately sharp claws, well developed pulvilli and long, bladelike empodium.

Wings: Marginal cell open, a distance equal to its own width or slightly less. The anterior branch of the third vein ends well above the wing apex; the first submarginal cell is open by a little more than its maximum width. First posterior cell closed and stalked in many species including the type of genus, but in some species open. Fourth posterior cell closed and stalked. Anal cell almost always closed in the margin. The ambient vein is complete, the alula large.

Abdomen: The abdomen is elongate and distinctly tapered posteriorly; at its base it is as wide as the mesonotum and is subcylindrical apically; it may be slightly flattened over the basal tergites. Pile of abdomen abundant, quite short, fine, setate and appressed except on the base of the basal tergites. Sides of the first tergite with 5 to 8 long, stout bristles. There are eight tergites in the male, the last being one-fourth to one-fifth as long as the seventh; female with 8 tergites, the last being one-half as long as the seventh. Male terminalia rather prominent, characteristically not rotate; the epandrium is completely divided, widely separate; gonopod smaller; the hypandrium is prominent, often long and may be sulcate apically. Female terminalia with 6 pairs of conspicuous, stout, apically rounded, spoon-shaped spines; no lateral bristles below.

Distribution: Nearctic: *Scleropogon aeacidinus* Williston (1886); *bradleyi* Bromley (1937); *cinerascens* Back (1909); *consanguineus* Loew (1866); *dispar* Bromley (1937); *duncani* Bromley (1937); *ebyi* Bromley (1937); *helvolus* Loew (1874); *indistinctus* Bromley (1937); *kelloggi* Bromley (1937); *latipennis* Loew (1866); *longulus* Loew (1866); *neglectus* Bromley (1931); *ochraceus* Wulp (1870); *picticornis* Loew (1866); *pumilus* Coquillett (1904); *similis* Jones (1907); *subulatus* Wiedemann (1828); *tenebrosus* Coquillett (1904); *texanus* Bromley (1931); *uhleri* Banks (1920).

Neotropical: *Scleropogon mexicanus* Cole (1923); *truquii* Bellardi (1861).

Genus *Neoscleropogon* Malloch

FIGURES 88, 184, 481, 897, 906, 1708, 1711, 1713, 1888, 2025

Neoscleropogon Malloch, Proc. Linnean Soc. New South Wales, vol. 53, p. 607, 1928. Type of genus: *Dasypogon elongatus* Macquart, 1846, by original designation.

Rather large, elongate flies with cylindroid and slightly tapered abdomen. They are characterized by the generally short pile, which is long, fine and abundant on the pleuron, the sternites and legs. The face is narrow and the head is nearly circular from the anterior aspect. Readily separated from *Scleropogon* Loew by the fully rotate terminalia, which are not rotate in that genus and in females by the winglike process to the proctiger. Mesopleuron and lateral metasternum with abundant pile in contrast to both *Scleropogon* and *Stenopogon* Loew. The prominent hypandrium is noteworthy. Length 25 mm.

Head, lateral aspect: The face is slightly visible on the upper half, and moderately protuberant and prominent below. The eye is recessive anteroventrally beginning at the middle of the posterior eye margin. The occiput is unusually prominent but slopes rapidly backward from the eye margin; it is obliterated only at the immediate vertex and at this point rapidly becomes thick and tumid. The occipital pile is fine, long and crinkled and moderately abundant on the lower half. Occipital bristles begin at the midpoint of the head and consist of 15 to 20 pairs of long, basally stout, distally fine and strongly proclinate, black bristles. Proboscis of moderate size, slightly compressed dorsoventrally with a high, prominent, dorsomedial, thinned ridge. The base is slightly swollen laterally, the apex bluntly pointed, chiefly tapered from below and bearing a prominent, lateral fringe of stiff, long pile on the apical fifth which becomes shorter at the extreme apex. The sides and ventral portion of the proboscis on the basal half have some long, fine pile. Palpus clearly of two segments; the first segment excavated and both segments with abundant, long pile; the second segment is porate, with distinct, off-set attachment and with the stiff pile more or less equally distributed on all sides except medially. The antenna is attached at the upper third of the head, slender and moderately elongate and of equal length with the head. The first two segments are equal in length to the third, if the microsegment is excluded. The third segment is slender, slightly attenuate near the apex and bears a long, subsegment which is attached obliquely but is held in nearly the same plane; this subsegment is at least half as long as the second antennal segment; to its apex is attached a short, blunt, basally swollen spine. The first segment bears numerous, long, stiff hairs ventrally and laterally. Second segment with only a few hairs ventrally and still fewer dorsally.

Head, anterior aspect: The face is narrow, below the antenna it is less than one-sixth of the head width and divergent below. The face is micropubescent without pile, but with two groups of prominent, long, slender, pale bristles. There is a group arising from the flattened portion of the face below the antenna which is nearly as long as the third antennal segment and curved downward, followed by a bare area in the middle of the face. The entire medial portion of the facial protuberance is densely filled with very long, oblique, pale bristles nearly as long as the antenna. Front slightly divergent, with numerous, long, stiff hairs laterally or weak bristles. The vertex is slightly excavated, the ocellar protuberance moderately high, with steep sides and bearing 8 to 10 pairs of long, weak bristles. Anterior eye facets slightly enlarged.

Thorax: The thorax is micropubescent laterally on the mesopleuron and on the pleuron. The mesonotal pile is moderately abundant, fine, erect and long. Acrostical and dorsocentral elements are undifferentiated from other pile except that before the scutellum are some much longer and slender, bristly hairs. The lateral bristles are very stout, and pale and consist of 3 notopleural, 1 postsupraalar, 2 postalar, with additional long pile, and 4 pairs of scutellar marginal bristles, of which the alternate pairs may be black. Scutellar surface is flat and transversely striate, bearing 15 to 20 long, fine, erect hairs. The propleuron bears abundant, long, fine crinkled pile. Pronotum without bristles but with dense, long pile. The upper sternopleuron and posterior half of the mesopleuron each bear 20 to 30 long, crinkled hairs. Pteropleuron with 4 or 5 short, fine hairs. Posterior hypopleuron with 4 or 5 fine hairs, and no clear patch spot of pubescence. Metapleuron with pile anteriorly and a broad, middle, oval area bearing numerous, fine, long, slender, pale bristles. Metanotal slopes bullose and micropubescent only. Lateral slopes of metasternum with long, fine pile. Metasternum with very abundant, long, fine pile; postmetacoxal area membranous; tegula pubescent only. Prosternum fully dissociated.

Legs: The legs are stout without being especially thickened; the hind femur bears appressed, sharp setae above and laterally, changing to scattered, fine, long hairs below which ventrally and ventromedially form a fringe of long hairs. This femur bears 2 dorsal and 2 medial bristles, confined to the outer half and none close to the apex, and also 4 lateral and 8 ventral bristles. The hind tibia bears a few, scattered setae above and a few, fine hairs below besides a dense, medial brush of appressed setae which begins before the middle. This tibia bears very stout bristles as follows: 4 dorsal, 4 lateral, 7 ventrolateral, and 7 ventromedial bristles; these last are for the most part shorter than the remainder. The apex has 1 dorsal, 2 medial, 2 lateral, and 4 ventral bristles. Middle femur with long pile everywhere on the basal half and setae dorsally on the remainder and stout bristles as follows: 3 anterior on the basal half, 2 posterior, 1 dorsal, and 1 anterodorsal bristle situated at the outer third. The middle tibia bears 4 anterodorsal, 3 posterodorsal, 5 posteroventral, 2 very long ventral, and 4 long, anteroventral bristles. The apex bears 10 bristles. Anterior femur with a posterior bristle at the outer fifth and an anterior bristle near the apex; elsewhere with abundant, very long, crinkled pile. The anterior tibia bears 4 short, stout bristles anterodorsally, 3 posterodorsally, 3 posterior and 2 quite long posteroventral bristles; the apical circlet of spines is similar to the midtibia; no apical spine present. All tarsi end with long pulvilli, stout basally swollen empodium, half as long as the claw, and sharp, apically bent claws.

Wings: The wings are subhyaline; the marginal cell is open, the anterior branch of the third vein ends distinctly before the apex; the fourth posterior cell is open but narrowed. The second basal cell ends in 3 veins; the middle vein is quite short and the anal cell narrowly open. Alula large; ambient vein complete.

Abdomen: The abdomen is cylindroid, rather slender and slightly club-shaped at the apex in males. Wing and abdomen of the same length. The first tergite is somewhat swollen and expanded laterally. There are 7 well developed tergites in the male, the eighth is quite short and only to be noted laterally; the second to fifth are longer than wide. Eight tergites are present in the female. The pile of the abdomen is minute and short dorsally, except upon the first and the base of the second tergite; it is quite sparse in the female, but more dense in the male, where it is subappressed and setate. Sides of first, second, and third tergites with abundant, fine, long, erect, crinkly pile. Bristles restricted to the first tergite which has 1 to 3 pairs of stout, long, pale bristles. Sternites with long, fine pile, the first excepted. Male terminalia large but short, obtuse, and clublike, with complete rotation. There is a large, convex, bowl-shaped, undivided hypandrium which is situated dorsally and is fully as long as the epandrium. The epandrium appears to be fused or nearly fused, with the smaller, shorter gonopod lying midway between the upper and lower elements. The epandrium is conspicuous, divided almost or quite to its base and a little divergent so that the proctiger lies in between. Both epandrium and hypandrium tend to turn inward at the apex so that the interior structures are tightly enclosed. Female terminalia short with 6 pairs of extremely stout, blunt spines.

Distribution: Australian: *Neoscleropogon elongatus* Macquart (1846) [=*agave* Walker (1854), *digentia* Walker (1849), *flavifacies* Macquart (1849), *fraternus* Bigot (1878), *lanatus* Walker (1854), *thalpius* Walker (1854)]; *nicoteles* Walker (1849).

Genus *Rhacolaemus* Hermann

FIGURES 119, 455, 918, 927, 1751, 1849, 1979

Rhacolaemus Hermann, Zeitschr. syst. Hymen. und Dipt., vol. 7, p. 12, 1907. Type of genus: *Rhacolaemus variabilis* Hermann, 1907, by monotypy.

Comparatively small flies with circular head from the anterior aspect and relatively short antenna no longer than the head. The third segment bears 2 microsegments, the second is attenuate and apically pointed. The face is unusually narrow and the lower facial bristles few in number but stout. Second submarginal cell of wing short. Length 10 to 12 mm.

Head, lateral aspect: The head is long, strongly convex both anteriorly and posteriorly. The occiput is prominent throughout but especially below and bears moderately abundant, long pile and dense pollen. The upper half of the occiput has some 20 short, moderately stiff bristles on each side. The proboscis is rather short, not as long as the mystax, and distinctly compressed laterally, but only towards and at the apex. Apex with a few hairs, the base with long pile below. Palpus of two segments, subcylindrical, the second segment acutely conical, its apex narrowly truncate but apparently not perforated; the ventral surface bears a few, moderately long, slender, yellow hairs, with none at apex.

Head, anterior aspect: The face is quite narrow and rather strongly divergent below. The head is almost circular, but slightly flattened, or depressed above and below. It has short pile, directed obliquely downward, except on the lower anterior portion, which is gently produced but straight in profile and bears a lower marginal row of 5 pairs of moderately long, straight, quite stiff, whitish bristles; above these bristles there is an additional row of 2 or 3 pairs and still a little higher an arched row of 4 bristles. Sides of front with 5 or 6 appressed, short, brownish yellow, bristly hairs. Sides of ocellar protuberance each with a longitudinal row of 3 somewhat longer, stiff bristles, which are curved forward, the anterior element longest. Anterior facets a little enlarged. The vertex has scarcely any excavation, the ocellar protuberance very low, the anterior ocellus directed nearly upward.

Thorax: Mesonotum not very high, strongly convex anteriorly. Mesonotum pollinose and everywhere rather sparse, short, appressed pilose. Humerus anteriorly with 7 or 8 bristles. The lateral complement of bristles consists of 2 long and 2 short on the notopleuron, supraalar with 3, and postalar with 3 long, stout bristles. Scutellar margin with a single pair of long, stout, crossed bristles, 2 pairs of lateral bristles. There is a widely separated, postdorsocentral row of 3 bristles on each side in front of the scutellum. Scutellum flattened, pollinose but not pilose. Metanotal slopes pollinose only. Hypopleuron, pteropleuron, and mesopleuron micropubescent, without pile or bristles. Metapleuron with 3 or 4 quite short, brownish yellow, stiff bristles. Anterior pronotal collar with 7 pairs of unusually long, stiff bristles. Upper anterior propleuron with 5 or 6 stout, yellow bristles.

Legs: Anterior coxa is densely covered with stiff bristles; lower anterior margin of middle coxa similarly covered, the posterior coxa with 3 lateral bristles. Hind femur stout with appressed pile and short, stout bristles. There are 5 lateral and 2 dorsolateral apical bristles. This femur has 4 or 5 short, ventrolateral bristles and an equal number of still shorter ventromedial bristles, both groups chiefly confined to the outer half. Back from the apex is an oblique row of 3 long, stout, medial bristles; ventral pile short and appressed. Hind tibia short, appressed pilose and with stout oblique bristles. This tibia has 4 dorsal bristles beginning at the basal fourth, 4 ventral, and 4 or 5 lateral bristles; apical bristles are long and stout and consist of 1 medial, 3 ventral, 1 lateral, and 2 dorsal. Middle femur slightly thicker and a little shorter, with 2 anterior and 3 stout irregular posterodorsal subapical bristles. Tibia with stout bristles: 3 dorsal, 3 or 4 posterior, 2 ventral, 2 anteroventral, and 4 anterior bristles. Anterior femur also somewhat thickened, especially towards the base; it bears a short, stout bristle dorsally at outer fifth; its tibia has a double dorsal row each with 3 or 4 bristles, a slightly longer posteroventral row of 3. All these bristles are oblique and stiff. Apex with 2 anterior, 2 dorsal, 1 posterior, and 3 ventral bristles. Apex without spine. Claws long, rather blunt, the immediate apex acute but not sharp or slender. Pulvilli and empodium as long as the claw; empodium swollen at base.

Wings: The wings are broad, the marginal cell open. The second submarginal cell is unusually short, widely flared apically, with the anterior branch of the third vein ending above the wing apex. The fourth posterior cell is closed and stalked. Anal cell narrowly open; middle end vein of second basal cell quite short. Alula large; ambient vein complete.

Abdomen: The abdomen is at least as wide as the mesonotum on the basal 3 tergites; it is slightly narrowed from the base of the fourth tergite. The first tergite is a little more than half as long as the second, the first 4 are somewhat flattened, the remainder of the abdomen is subcylindrical with more strongly curled sides, the end of abdomen drooping. Sides of first tergite with 2 or 3 stiff bristles; remaining tergites with only short pile which is strongly appressed except on the actual lateral margin itself. Eight tergites are visible, the last tergite is only one-fifth as long as the seventh. Female terminalia with a row of 4 or 5 short, blunt, spines on each side which protrude only slightly. Ventral plate divided in the middle.

Distribution: Ethiopian: *Rhacolaemus variabilis* Hermann (1907).

Genus *Ospriocerus* Loew

FIGURES 89, 457, 898, 907, 1722, 1728

Ospriocerus Loew, Berliner Ent. Zeitschr., vol. 10, p. 29, 1866. Type of genus: *Asilus abdominalis* Say, 1824, as *Dasypogon acacus* Wiedemann, 1828, described by Loew as a new species, *Ospriocerus acacides* Loew, 1866. Designated by Back, 1909.

Medium-size or large flies, the head nearly circular from the frontal aspect. They are distinguished by reduced pile and numerous, stout bristles on the thorax, legs, and head. The antenna is characteristically elongate, especially the third segment, which is rather flattened and somewhat widened. Most species are black, with black wings and with the abdomen either pale colored or dark. The abdomen is elongate and tapered. Related to *Stenopogon* Loew, they are at once separated by the presence in that genus of a well developed miscrosegment attached to the third antennal segment. In *Ospriocerus* it is generally absent, rarely present and minute, and the third antennal segment is more elongate, and differently shaped; the wings are generally broader. Length 16 to 30 mm.

Head, lateral aspect: The head of medium length, the face short on the upper half but considerably more prominent below, due chiefly to the anteroventral recession of the eye. The lower half of the face may be slightly produced but in general the profile is nearly plane. The occiput is tumid and strongly developed, especially towards the medial portion, but slopes gradually away from this area down to the eye margin. To some extent the ventral exposure of the occiput is due to the strong recession of the eye. The occipital pile is coarse and bristly behind the proboscis and medially; the entire occiput from bottom to vertex with an extensive band of stout, numerous, rather long bristles. The extent of the eye ventrally is greatly reduced leaving it pointed and angular. The proboscis is small and slender, cylindrical, tapered to an obtuse point and extending well beyond the face. The basal half below is beset with scattered bristly hairs, the apex with short, stiff hair. Palpus clearly of two segments, the first segment hemicylindrical and excavated, the second short, robust with apical pore and bristly pile. The antenna is attached at or above the upper fourth of the head and elongate, distinctly longer than the head, the second segment is one-half or one-third the length of the first, and the third segment at least twice the length of the first two combined. Medial surface of the third segment with extensive sensory areas, the apex with a short, semifused microsegment carrying an apical pit and spine; less commonly with two small, slender microsegments.

Head, anterior aspect: The head is nearly circular. The face below the antenna is narrow, one-fifth or less the total head width and rather strongly divergent below, its surface very finely pubescent, the upper half medially has short, stout bristles or bristly setae. The lower and slightly produced half has a few, scattered, long, quite stout bristles, and some smaller, more slender ones, extending laterally down the sides of the oblique, concave subepistoma. Front short, small and pollinose, characteristically with an ocular row of 3 or 4 unusually stout, long bristles. The front is a little wider than the upper face and slightly converging above. The vertex shows little and sometimes no excavation. The ocellarium is quite low with several pairs of slender bristles and an additional postocellar row on each side. Anterior eye facets scarcely enlarged.

Thorax: The mesonotum is bare in appearance due to the reduced pile, which consists of stout, short, scattered, suberect setae. No differentiated acrostical or dorsocentral bristles present. The lateral complement of bristles consists of 2 to 8 humeral, 3 to 5 posthumeral, and a like number of notopleural and also of supraalar and postalar bristles. Scutellum with 3 to 5 pairs of bristles, the surface convex and otherwise bare. Pleuron, except for the anterolateral element, characteristically best with many, long, stout bristles. The anterolateral element has a tuft of fine pile. Prosternum dissociated. Mesopleuron, pteropleuron, and hypopleuron apilose. Sternopleuron with a few, fine hairs. Metapleuron with reduced, bristly hairs and sometimes 1 or 2 stout bristles. Lateral slopes of the metasternum apilose, the ventral metasternum with 2 or 3 hairs, the postmetacoxal area membranous.

Legs: The femora are stout, the anterior pair slightly swollen towards the base. Bristles are unusually abundant, the pile coarse, dense, appressed setate. On the hind femur there are 5 to 8 dorsolateral, 7 to 16 ventrolateral, and 7 or 8 ventromedial bristles, besides several medial bristles. The bristles are numerous on the ventral and posterior surface of the anterior femur and the ventral, anterior surfaces and posteroventral surfaces of the middle femur. There are 10 to 12 of these stout elements on these ventral surfaces and 3 to 5 on the anterior surface of the middle femur, 2 posteriorly near the apex. Anterior surfaces on the anterior and middle coxae and lateral and ventral surfaces on the posterior coxa with numerous stout bristles. Tibial bristles of only normal numbers except on the anterior four. The dorsal surface of the hind tibia has 5 in each row but there are 12 ventromedial bristles present and 5 ventrolateral ones. Anterior tibia with 4 rows and middle tibia with 5 rows of stout, only moderately long bristles, usually containing about 7 elements each. Protibial apex without spine. Claws long, stout, rather sharp, the pulvilli well developed, and the empodium bladelike.

Wings: The marginal cell is widely open. Fourth posterior cell closed in the margin or closed with a stalk. Anal cell narrowly closed or open. Wings generally dark smoky blackish or bluish black.

Abdomen: The abdomen is comparatively elongate and sometimes longer than the wings. At the base it is about as wide as the mesonotum and gently tapered beyond. Males with 7 tergites, the eighth completely concealed. Females with 8 tergites, the last being about half as long as the seventh. Pile of abdomen scanty, setate, and appressed. Bristles restricted laterally to the first 2 or 3 tergites where they may be stout and numerous especially on the first 2 tergites. Male terminalia not rotate, the epandrium widely divided into distinct, elongate forceps of moderate size. The gonopod is smaller, the hypandrium moderately large. Females with 6 pairs of long, stout spines on the acanthophorites.

Distribution: Nearctic: *Ospriocerus abdominalis* Say (1824) [=*aeacides* Loew (1866), *aeacus* Wiedemann (1828), *spathulatus* Bellardi (1861)]; *eutrophus* Loew (1874); *minos* Osten Sacken (1877); *nitens* Coquillett (1904) [=*monki* Bromley (1934)]; *parksi* Bromley (1934); *rhadamanthus* Loew (1866); *ventralis* Coquillett (1898).

Neotropical: *Ospriocerus diversus* Williston (1901).

Genus *Galactopogon* Engel

FIGURES 156A, 458, 915, 924, 1824, 1848, 1865, 2030

Galactopogon Engel, *in* Lindner Die fliegen der palaearktischen Region, pt. 24, Asilidae, p. 273, 1929. Type of genus: *Galactopogon hispidus* Engel, 1929, by original designation.

Characterized by the nearly circular head and narrow face and the absence of pulvilli. From *Gonioscelis* Loew it is also separated by the absence of the facial gibbosity. The bristles of the face are exceptionally long, dense, and close-set. While there are numerous stout bristles on the anterior coxa and femur, more than ordinarily found, the femur lacks the extrusive processes and the short spinous character of the bristles found in *Gonioscelis.* The circular head and type of antenna, wing and general appearance are common to both genera. Length 17 mm.

Head, lateral aspect: The eye is comparatively short and high and convex anteriorly; it is strongly recessive anteroventrally beginning at the upper fourth of the head and developing gradually so as to leave the occiput strongly developed and tumid ventrally. Pile of occiput abundant, moderately long, coarse, and curled, extending to the eye margin ventrally and almost entirely replaced dorsally by bristles, though there is some pile placed rather deeply medially towards the foramen. Beginning at the middle of the head submarginally there is a tuft of 6 short, white bristles followed by an irregular double row of light orange brown bristles somewhat stouter and extending to the vertex. These dorsal bristles contain intermixed some longer, more slender, strongly proclinate bristles. The proboscis is robust, slightly tapered from the dorsal aspect but with nearly parallel sides, and has a low, medial ridge arising at the basal third and ending before the apex, which is obtusely pointed, with a fringe of stiff hairs either side; proboscis has many long, stiff hairs ventrally and ventrolaterally on the basal half. The proboscis is directed obliquely forward and downward, its length slightly greater than the head. Palpus clearly of two segments, the first hemicylindrical, excavated, and bearing long, stiff pile laterally and ventrally; the second comparatively slender, a little swollen in the middle, porate and with numerous, slender, bristly hairs dorsally, a few laterally and ventrally, none of them arising at the apex.

The antenna is attached at the upper third of the head, comparatively slender, but not longer than the eye; the first segment is at least twice as long as the second, the short second segment is widened distally, wider than the base of the third segment. Third segment slightly compressed laterally, widest at the apical third, a little narrowed apically and bearing a short, but distinct microsegment, followed by a longer, thick stylelike microsegment with apical spine. First segment with a long, oblique, bristly hair dorsally and with 12 to 14 exceptionally long stiff bristles ventrally and ventrolaterally. Second segment with 2 short setae dorsally and 4 ventrally.

Head, anterior aspect: The head is nearly circular. Face below antenna one-seventh of head width, divergent below to less than one-third of width at the epistoma. The front is a little wider than the upper face, the vertex likewise. Subepistomal area moderately large, oblique, concave, and bare. Face thinly pubescent, the cheeks bare. Down the middle of the face is a very dense band of slender, pale, long bristles, strongly curled downward and becoming considerably longer ventrally but very little stronger except in the middle of the lower face; laterally this band of bristles diverges and becomes wider but only extends down the upper third of the epistomal margins. About one-fifth of the face on each side is left without bristles or pile. The front is pollinose, with 2 or 3 submarginal bristles and 10 or 12 additional long, stiff hairs; it has a depressed concavity in the middle. Vertex scarcely excavated, the eye on either side rising above the vertex, the ocellarium low, the anterior ocellus quite large, and the ocellarium bearing 2 pairs of exceptionally stout, rather long bristles in the middle, together with some short pile, and an additional pair of stout bristles between the posterior ocelli. Anterior eye facets only moderately enlarged, convex, not zoned.

Thorax: The thorax is densely, minutely appressed micropubescent. The mesonotal length is two times the height and convex anteriorly. Pile of mesonotum scanty and scattered, stiff and bristly, a little more abundant on the anterior margin with a poorly differentiated double band of acrostical, bristly hair and on either side beginning at the anterior margin, exceptionally long and unusually stout, well developed dorsocentral bristles with 6 or 7 elements anterior to the suture, the suture being obliquely curved backword, leaving much of the mesonotum in the anterior portion. Behind the suture are only 2 of these long, stout, dorsocentral bristles but there is an additional band of long, coarse, brownish white pile extending back to the scutellum. Laterally the mesonotum has the following complement of exceptionally stout bristles: 2 humeral, 1 posthumeral, 2 notopleural, 1 presupraalar, 3 supraalar in an oblique row, 4 postalar, and 7 pairs of scutellar bristles; all these bristles are long, except on the humerus. The scutellum is short but quite convex and thick, surface is micropubescent, apilose. Pleuron with exceptionally abundant, dense, long pile ventrally and laterally. The anterior collar has a row of 7 or 8 stout, straight, long bristles; the posterodorsal pronotum has a patch of 10 slender bristles and additional, bristly hairs. Upper mesopleuron without pile; anterior corner of sternopleuron, the pteropleuron each with a patch of stiff pile. Metapleuron with a band of fine, comparatively short hairs and no bristles. Lateral slopes of the metanotum micropubescent only, hypopleuron apilose. Upper sternopleuron with numerous, long, coarse hairs, quite in contrast to the bare mesopleuron. Lateral and ventral metasternum with a few fine, long hairs; postmetacoxal area membranous; tegula pubescent only.

Legs: Anterior and middle femora a little swollen towards the base. Hind femur stout, with flat appressed, matted, white pile on the dorsal, lateral and ventral surfaces, and with numerous moderately long, stout, white bristles consisting of 8 to 10 dorsal, 9 to 12 ventrolateral, and 5 or 6 ventromedial bristles. Of these elements the lateral bristles are the longest and may be appressed or nearly erect; 3 of these bristles are at the apex, including 1 from the lateral group. Hind tibia with appressed, opaque, white pile and moderately long, white bristles. 5 dorsomedial, 7 dorsolateral, and 4 ventrolateral elements, with the middle bristles strong, and 2 or 3 stout, ventral medial bristles lying especially beyond the middle. Apex of tibia with stout, pale bristles that consist of 1 anterior, 1 anterodorsal, 1 posterodorsal, 2 medial, and 4 ventral bristles. Middle femur with a row of 9 posteroventral bristles and 4 anteroventral bristles and 3 posterior elements at the apex; middle tibia with 5 anterodorsal, 3 posterodorsal, 5 posteroventral, and 2 ventral elements, all pale. Anterior femur with 4 dorsal, located especially on the outer third, with 10 to 12 ventral elements in partly double rows and mostly basal in position; anterior tibia with 6 oblique, short, anterodorsal elements and 6 longer, posterodorsal bristles and 6 posteroventral bristles; apex with 1 extremely long, anterior bristle, another posteriorly and 8 shorter bristles; no spine present. The apex of the first 2 tarsal segments and the base of the first segment bear long, stout, pale appressed bristles. End tarsal segment long and slender, a little longer than the preceding tarsal segments; basal segment as long as the next 2 together. The claws are long, gently curved from the base, moderately sharp; the empodium is stout throughout, sharp at apex, only half as long as claw; pulvilli absent.

Wings: The marginal cell is widely open; fourth posterior cell slightly narrowed; the second basal cell ends in 3 veins, the middle vein short; anal cell narrowly open. The anal notch is deep, the alula large, elongate apically; ambient vein complete.

Abdomen: The abdomen is moderately robust and slightly tapered; at the base it is as wide as the mesonotum, and the whole nearly subcylindrical. The sides of the first tergite bear a long, vertical row of 12 to 14 yellow bristles which are both stout and weak, and additional fine hairs. Sides of second to fourth tergites with an oblique row of 3 stout, long, pale bristles. Sternites with long pile. Females with 8 tergites. The male terminalia are moderately conspicuous with the epandrium deeply divided but fused at the base; the 2 halves are prominent, comparatively long, and obtusely convex posteriorly. The proctiger is unusually large and prominent, thrust obliquely upward. Gonopod smaller, but long, and more or less attenuate apically. Hypandrium short but thick and convex. Ovipositor composed of two segments, the seventh and eighth, and the former is about twice as long as the latter; it bears apically 5 rounded, scooplike reddish spines on each side.

Distribution: Palaearctic: *Galactopogon hispidus* Engel (1929).

Genus *Gonioscelis* Schiner

FIGURES 137, 451, 916, 925, 1561, 1710, 1778, 1782, 1911

Gonioscelis Schiner, Verh. zool.-bot. Ges. Wein, vol. 16, p. 670, 1866. Type of genus: *Dasypogon hispidus* Wiedmann, 1819, by original designation.

Bristly flies of medium size or smaller, with elongate, tapered abdomen which ends obtusely. Head circular from the frontal aspect. Characterized by the closed and petiolate fourth posterior cell and especially the anterior coxa, femur and tibia which are raptorial and armed with clusters of stout spines. Length 12 to 22 mm.

Head, lateral aspect: The head is of medium length. The face and occiput are well developed below; the facial gibbosity begins a little above the middle of the face. The upper occiput is nearly but not quite obliterated by the eye. The upper occiput has long, stiff, anteriorly curled hair; lower occipital pile finer and straight, of about the same length; middle pile shorter. Proboscis small, cylindrical, bluntly pointed, and directed chiefly forward; it has a low, distinct dorsal ridge, fine hairs at the apex, and rather abundant, long, stiff pile ventrally on the basal half. Palpus of two segments. First segment quite short, excavated; the second segment long, cylindrical, slender with a pore at apex. The antenna is attached just above the upper third of the head. The antenna is slender, the first two segments rather long, with the first slightly longer than the second. First segment with long, stiff bristles above, below, and laterally; the second segment is similar but with fewer bristles. The third segment is 1½ times as long as the first two segments combined, slightly flattened, slightly wider in the middle, gradually tapered in either direction, ending in a short, acutely pointed, needle-tipped style or microsegment; style one-fourth the length of the third segment.

Head, anterior aspect: The head is almost circular; anterior eye facets scarcely enlarged. Front and face micropubescent, the former with 2 or 3 fine hairs, the vertex with 17 or 18 moderately long, strong bristles. Face with a wide, medial, vertical band of quite stiff, bristly hairs throughout its entire height; this band expands and widens below, leaving the sides of the face at least narrowly bare of pile. The face at antenna is narrow and expanded below to a little more than twice the upper width of the face. Front of the same width as upper face, its sides parallel. Vertex virtually without excavation.

Thorax: The mesonotum moderately convex; everywhere pilose including the humerus but not on the scutellar surface. Notopleuron with 3 strong posterior and 2 weak anterior bristles; supraalar bristles 1 to 12 in number; postalar region with a double row, 3 or 4 below, 2 above; scutellar margin with 1 to 5 pairs of bristles. Propleuron and posterior mesopleuron pilose; in some species the upper mesopleuron and metapleuron is without any pile. Lateral metanotal slopes without pile; lateral metasternum also without pile; ventral metasternum with numerous, long, fine hairs. The postmetacoxal area is membranous and the prosternum fully dissociated. The humerus may have 1 to 12 bristles. Metanotum without pile.

Legs: The posterior femur is slightly thickened, midfemora more thickened and the anterior femur massive and gradually but very greatly thickened on the basal portion; the immediate base is expanded forward and the anteroventral surface heavily beset with short, stout, spinous setae or bristles which are opposed to a similar row on the ventral side of the tibia; these tibial bristles are larger and sharper and rarely may be absent or reduced to hairs. Postfemur with ventrolateral and also a lateral row of bristles, an apical circlet of 4 medial bristles, and a double row of larger ventral bristles, longest basally. Hind tibia with ventrolateral, dorsolateral, and dorsomedial row of bristles. Middle tibia with 6 rows of bristles; this tibia ends in a short lappet anteriorly and posteriorly. Anterior femur with long, abundant pile, and a lateral, distal row of 4 bristles besides the ventral setae. Anterior tibia with ventral, lateral, and double dorsal row of bristles, besides the black spinous setae; apex of tibia without spine. Tarsi end in fine empodium and well developed pulvilli.

Wings: The marginal cell is widely open. Fourth posterior cell closed and stalked. Anal cell open. The anterior crossvein enters the discal cell before the middle. Alula present; ambient vein complete.

Abdomen: The abdomen tends to be cylindrical, or a little flattened across the middle of the tergites and slightly tapered. The pile is fine, scanty, subappressed, and sometimes longer on the lateral margins. Sides of first tergite with only long, stiff, bristly hairs. Males with eight tergites but the eighth is quite short and liplike. Females with eight tergites, with the eighth half as long as the seventh and shorter laterally. Male terminalia not rotate, prominent and sometimes exaggerated as in *Gonioscelis genitalis.* The epandrium is fully cleft into elongate, slightly divergent superior forceps which tend to form simple lobes, unmodified, except that some species bear tufts of stout, backwardly directed bristles at the apex of each lobe. The hypandrium is especially long and prominent, rather bowllike with convex margins and directed obliquely upward; the small, short gonopod is tucked in laterally above the hypandrium. Females with acanthophorites and 6 pairs of long spines.

Distribution: Ethiopian: *Gonioscelis calopus* Bigot (1878); *femoralis* Ricardo (1925); *genitalis* Ricardo (1925); *haemorrhous* Schiner (1867); *hispidus* Wiedemann (1819); *lacertosus* Engel (1925); *longulus* Ricardo (1925); *maculipennis* Engel (1925); *maculiventris* Bigot (1878); *mantis* Loew (1852); *melanocephalus* Schiner (1867); *nigripennis* Ricardo (1925); *oculatus* Engel (1925); *phacopterus* Schiner (1867); *pruinosus* Ricardo (1925); *punctipennis* Engel (1925); *rufescens* Ricardo (1925); *setosus* Wiedemann (1824); *submaculatus* Speiser (1910); *ventralis* Schiner (1867); *xanthopogon* Speiser (1910).

Genus *Macrocolus* Engel

FIGURES 125, 477, 900, 909, 1702, 1847

Macrocolus Engel, Konowia, vol. 8, p. 471, 1930. Type of genus: *Macrocolus bicolor* Engel, 1930, by original designation.

Comparatively delicate flies with broad, dark brown wings, greatly reduced pile, the hind legs lengthened and the antenna characteristically elongate. The antenna is not only unusually long but attached near the top of the head. The face is without pile, bristles are restricted to the epistomal border, the general black coloration contrasts with the light reddish, thoracic color. These flies greatly resemble the bicolored pattern found in such bibionids as *Plecia* Wiedemann. The relationship of the genus is uncertain; perhaps related to *Mirolestes* Curran. Length, including the antenna, 14 mm.

Head, lateral aspect: The head is short, the face likewise. The face is almost plane in profile, nearly even with the eye through the middle; its most conspicuous area lies above the epistoma and is chiefly due to the slight anteroventral recession of the eye. The antenna is attached on a level equal to the vertex; as a result the face is unusually high and the frontofacial area upon which the antenna rests is somewhat prominent. The occiput is not prominent, except below the middle and medially, where it is a little swollen; it is almost without pile, since even the lower elements are fine and bristly and there are moderately stout bristles beginning near the bottom and continuing to near the vertex. The proboscis is rather slender, distinctly extended beyond the face. It is only slightly tapered to a blunt apex. There is a rather high medial carina over the greater middle portion. It carries almost no pile apically and a few long, slender hairs ventrally at the base. Palpus clearly of two segments, the first segment excavated, the second porate, each carrying slender bristles. The antenna is two or more times the head length, the elongate first segment is 2½ to 3 times as long as the second segment and both bear numerous, fine bristles laterally, ventrally and dorsoapically. The still more elongate third segment is thin and flattened, sometimes a little twisted, at least 1½ times the combined length of the first two segments, is without microsegment but carries a large, dorsal, spoon-shaped, elongate opening at the apex, with concealed spine.

Head, anterior aspect: The head is not wide, but distinctly wider than high. Face in the middle about one-fourth the head width, slightly wider below and the front and vertex barely wider than the upper face. The face is without pile, but densely micropubescent except below the antenna. Bristles are restricted to the epistomal margin, where there are 6 pairs and sometimes a few additional more slender bristles. Front short, horizontal, bare, with 1 or 2 setae on each eye margin. Vertex but little excavated. Ocellarium low, yet with vertical sides, without interocellar bristles or pile, but with 3 or 4 pairs of short postocellar bristles curled forward. Anterior eye facets scarcely enlarged.

Thorax: The mesonotum is comparatively low, but rather strongly sloping posteriorly in front of the scutellum. Pile is unusually reduced in quantity on the mesonotum and still more on the pleuron. There is a distinct row of short acrostical and dorsocentral bristles, the latter becoming fine but rather short posteriorly. Humerus pilose. Lateral margins with fine, widely scattered, long setae. The lateral complement of bristles consists of no humeral, 2 long, stout notopleural, 1 supraalar, and no postalar or scutellar bristles. The scutellum is a little convex, with scattered setate hairs on the basal half. The pronotum is unusually prominent and long, with wide shallow crease or depression; the anterior collar has 5 or 6 pairs of stout bristles; the posterolateral pronotum with 1 long bristle and at least 12 slender, shorter bristles or bristly hairs. Lateral cervical sclerites with numerous stout and also slender bristles. Lateral prothorax with short bristly hairs. Prosternum dissociated. Remainder of pleuron bare, except for the metapleuron, which has 3 or 4 stout bristles and a few hairs. The lateral metasternum is bristly pilose, the postmetacoxal area membranous.

Legs: The legs fine, appressed setate, the bristles few in number. The hind femur and tibia rather distinctly elongate; this femur bears 3 to 5 lateral bristles, 2 medial at the base, its tibia has 8 dorsomedial, 6 dorsolateral, 3 ventrolateral bristles, and the apex has only 1 dorsal bristle, 1 lateral and 1 ventrolateral bristle. Middle femur with 1 long ventral bristle near the base, 2 posterodorsally near the apex, and 2 anteriorly at basal and distal thirds. The bristles of this tibia consist of 7 short dorsal, 7 anterodorsal, 5 posteroventral, and 2 longer, basally stout, ventral bristles confined to the outer half. The anterior legs similar to the middle legs but the femur is without anterior bristles. Anterior tibia without apical spine. All tarsi long and slender, the basitarsal segment as long as the next three; pulvilli long; empodium quite fine but widened laterally at the base and quite thin dorsoventrally.

Wings: The wings are quite broad and almost uniformly dark brown. Marginal cell widely open, all the posterior cells fully open, the anal cell widely open. The middle end vein of the second basal cell is long; both end veins of the discal cell of equal length, the anterior crossvein enters the discal cell at or near the middle. Alula short; ambient vein complete.

Abdomen: In general appearance the abdomen is slender, yet nearly as wide as the mesonotum; it is subcylindrical with parallel sides, and rather elongate. Pile of abdomen abundant, yet fine, somewhat bristly and subappressed, nowhere concealing the dully shining, black ground color. Bristles restricted to the first tergite with 5 or 6 lateral pairs. Males with seven tergites and a short dorsal liplike trace of the eighth segment, somewhat reduced in width. Terminalia quite short, but wide, somewhat mammiform. Male terminalia are rotate one-fourth. The epandrium has a V-shaped cleft to its base, the proctiger is very short and likewise cleft. Gonopod short, swollen basally, attenuate at apex and the hypandrium extremely short.

Distribution: Neotropical: *Macrocolus barrettoi* Carrera (1949) ; *bicolor* Engel (1930).

Genus *Dizonias* Loew

Figures 110, 471, 951, 960, 1770, 1773, 1927

Dizonias Loew, Berliner Ent. Zeitschr., vol. 10, p. 30, 1866. Type of genus: *Dizonias phoenicurus* Loew, 1866, by monotypy.

Large flies characterized by the cylindroid, parallel-sided abdomen, the long, slender, third antennal segment, and the numerous, stout bristles of the face. The broad wings are dark brown or blackish. *Dizonias* is one of a small group of interrelated New World genera, each with few species and all noted for the abundance of stout bristles on the legs and face. These genera related to *Dizonias* are *Sphageus* Loew, *Prolepsis* Walker, *Tolmerolestes* Lynch Arribálzaga and *Cylicomera* Lynch Arribálzaga. These could be confused only with *Ospriocerus* Loew of the *Stenopogon* Loew group; this group has a circular head from the frontal aspect, fewer face bristles, and males with terminalia not rotate. Length 20 to 25 mm.

Head, lateral aspect: The head is of moderate length. The face is prominent but nowhere greatly extended or gibbous; face shortest on the upper fifth beneath the antenna and at this point its rises or extends gradually and the remainder of the face is almost plane. The occiput is prominent especially on the dorsomedial portion, sloping gradually away from the eye margin. Pile of the occiput coarse and abundant and largely restricted to the ventral third with a few medial hairs on the upper part near the foramen. Laterally, beginning below the middle of the head are several rows of submarginal bristles; those upon the upper half nearest the eye margin are especially stout. The proboscis is prominent, extended well beyond the face and held not quite horizontally; beginning near the basal third, the proboscis tapers gradually towards the apex so that the latter is comparatively narrow and bluntly rounded with numerous apical, coarse, bristly hairs; the base on either side has a number of long, slender, bristly hairs. Palpus clearly of two segments, the first segment hemicylindrical and excavated, the second spindle-shaped, sometimes attenuate at the apex, with large apical pore, and always with exceptionally coarse, stout bristles. The antenna is attached at the upper fifth of the head and is always elongate; it is distinctly longer than the head. The third segment is much the longest and two to three times as long as the combined remaining segments. First two segments each with 4 or 5 stiff, ventral bristles; the third comparatively slender, slightly widened, gradually through the middle, without microsegment and the apex obliquely open and spoon-shaped with concealed interior spine.

Head, anterior aspect: The head is distinctly though only moderately wider than high, the face is wide and at the antenna it is slightly more than one-fourth the head width and divergent below to nearly one-third the head width. The face is pale micropubescent laterally, the broad medial portion shining and bare and rather thickly beset with unusually stout, long, coarse bristles arising from microtubercles; these become longer below and reach to the apex of the proboscis. Pile absent. The front is short with unusually numerous, long, stout bristles on either side leaving the medial half nearly bare and pollinose. Vertex not at all excavated or with only a very slight depression, the ocellarium is low and inconspicuous with 3 to 5 pairs of bristles. Anterior eye facets only slightly enlarged.

Thorax: The thorax is nearly bare, in part faintly pollinose, with greatly reduced pile which may be either fine and comparatively abundant down the middle of the mesonotum, or may entirely consist of stiff, posteriorly curved scattered setae. There is an acrostical double row of such pile or setae. There are no dorsocentral bristles differentiated from the wide anterior band of setae, but there are 3 or 4 pairs of long, stout, postdorsocentral bristles in front of the scutellum. The lateral complement of bristles consists of 5 to 7 humeral, 1 posthumeral, 3 or 4 notopleural, 4 supraalar, 2 to 3 postalar, and 1 to 3 scutellar pairs. The anterior propleuron bears a collar of about 12 pairs of exceptionally stout bristles, the posterior propleuron laterally with a cluster of 6 or more. The lateral propleuron has rather dense, coarse, bristly pile. Prosternum dissociated. The posterior half of the mesopleuron and upper middle of sternopleuron and the hypopleuron bear a number of fine, bristly hairs. Upper corner of the pteropleuron with a tuft of pile or sometimes 2 rather stout bristles. Anterior tegula with bristly hairs. Lateral and ventral metasternum with a few hairs; the postmetacoxal area membranous.

Legs: Bristles abundant, short but unusually stout. Pile of legs everywhere dense, but short and appressed setate. On the hind femur are 5 lateral, a pair of subapical dorsal, and at the apex 1 dorsolateral and 3 medial bristles. There is also 1 long, stout, subapical medial bristle and a ventromedial row of 7 bristles. On the hind tibia are 4 rows of bristles, 7 dorsolaterally, 6 dorsomedially and also 6 ventromedially, and 4 ventrolaterally. The apex bears 12 bristles, 3 of which are medial, 2 lateral, and 1 dorsal. The middle femur bears 4 prominent anterior bristles, 7 anteroventral, 10 posteroventral, and near the apex in a row 2 stout posterodorsal bristles. On the anterior femur the anterior bristles are much shorter and weaker. There are 7 posteroventral bristles and near the apex 4 posterodorsal bristles, as well as 5 anterodorsal situated quite at the apex. Both front and middle tibia with 7 to 8 bristles in each row except the ventral row, where there may be as few as 2 and neither with anteroventral bristles. Apex of anterior tibia without spine. Claws only slightly pointed, stout, strongly curved at the apex, the pulvilli long and broad, and the empodium bladelike.

Wings: The wings are broad, usually brown or blackish, marginal cell open, the fourth posterior cell closed with a short stalk or narrowly open. Anal cell narrowly open or closed.

Abdomen: The abdomen is robust, nearly as wide as the mesonotum and the first segment fully as wide. Sides of abdomen parallel and the whole cylindroid. The pile consists of scattered, appressed setae and a tuft or patch of longer, erect, bristly pile on the sides of the first and second tergites. First tergite laterally with 5 to 12 bristles, some of which may be almost spinelike. Males with seven tergites, females with eight, the last of which is prominent. Male terminalia rotate 180 degrees, the epandrium completely divided and also separated into short forceps. The gonopod is the same length as the upper element, but separated from it by a narrow cleft. Hypandrium quite short, the gonopod very broadly separated below, leaving the interior of the terminalia widely open. Female with 9 pairs of stout spines upon the acanthophorites.

Distribution: Nearctic: *Dizonias pilatei* Johnson (1903); *tristis* Walker (1851) [=*quadrimaculatus* Bellardi (1861), *bicinctus* Loew (1866), *albifasciatus* Back (1904)].

Neotropical: *Dizonias bromleyi* Carrera and d'Andretta (1950); *lucasi* Bellardi (1861); *phoenicurus* Loew (1866).

Genus *Tolmerolestes* Lynch Arribálzaga

FIGURES 113, 472, 913, 922, 1922, 1968

Tolmerolestes Lynch Arribálzaga, Ann. Soc. Cient. Argentina, vol. 11, p. 27, 1881. Type of genus: *Tolmerolestes pluto* Lynch Arribálzaga, 1881, by present designation. This is the second of three species.

Closely related to *Dizonias* Loew, from which it is separated chiefly by the more prominent face with the abrupt ledge shortly below the antenna. The antenna is somewhat shorter. An additional distinction lies in the concentration of many, very stout bristles on the upper half of the occiput. In *Dizonias* they are represented by a cluster or row of some 9 elements on each side; the stout bristles of the pronotum and lateral pronotum are exceptionally numerous and the acrostical pile is differentiated in *Tolmerolestes*. From *Cylicomera* Lynch Arribálzaga, to which it is also related, it is separated by the presence of acrostical pile, the more prominent ocellar tubercle, the dorsal facial ledge, the longer second antennal segment, and the bare disc of the scutellum. Length 18 to 20 mm.

Head, lateral aspect: The head is comparatively long because of the prominent occiput and face. The face, while nearly plane in profile, is considerably extended beyond the eye except for a short distance beneath the antenna, as which point it is extended forward leaving an abrupt ledge. The occiput is low along the eye margin but a short distance from the eye it begins to increase in thickness to a considerable extent. The pile on the ventral portion is coarse, stiff and abundant, and bristles begin below the middle of the head, form 2 to 3 rows, and become exceptionally stout and numerous dorsally. Each side of the head contains at least 40 stout bristles. Proboscis prominent, considerably extended beyond the face, narrowed at the immediate apex to a blunt point and a little widened from the dorsal aspect. The ventral surface is plane and the dorsal surface is arched with a distinct keel. The ventral surface on the basal half bears numerous, long, stiff hairs and the apex with a tuft of fine hairs. Palpus clearly of two segments, the first segment excavated, the second robust, short, attenuate, with apical pore and many bristles. The antenna is attached at the upper fourth of the head and elongate but comparatively shorter than in *Dizonias*. The first segment is a little longer than the second and each bears several rather long, stout bristles ventrally besides more slender bristles dorsally near the apex. The third segment is nearly 2½ times the length of the first two combined, slender, very slightly and gradually widened distally, with the apex having an oblique pit and short apical spine.

Head, anterior aspect: The head is distinctly wider than high, the eyes rather flattened anteriorly; the face below the antenna is about one-fourth the head width and moderately divergent below. It is coarsely pubescent and bears only numerous, rather long, curved, moderately stout bristles over the whole of the extended portion. Laterally they do not extend to the eye margin, and are generally both pale and dark. The front is comparatively short, broad, wider than the face, pollinose, with unusually prominent, numerous bristles laterally in several rows along the eye margin, and anteriorly a patch of short setae or bristles on either side of the midline. The vertex is very little excavated, slightly narrowed, with long bristles laterally beside the eye constituting an extension from the front; the large low ocellarium bears 1 pair of bristles between the ocelli, 2 stouter pairs between the posterior ocelli, and 2 or 3 other stout pairs posteriorly. The subepistomal area is large and oblique.

Thorax: The mesonotum is of moderate height and barely convex. It bears scattered, rather long, slender bristles or setae, with a differentiated double row of similar acrostical elements; and the dorsocentral elements are differentiated only by length, beginning behind the humeri, and form 3 rather long pairs posteriorly. Humerus with 8 to 10 rather stout bristles. The lateral complement of bristles contains 2 or 3 posthumeral, an oblique row of 4 very stout, conspicuous notopleural, 3 supraalar, 2 suprapostalar, 6 or 7 postalar, and 3 pairs of scutellar bristly hairs. Pronotal collar with 15 pairs of bristles and 10 to 12 additional bristles on the lateral pronotum, all of them stout. Upper and posterior mesopleuron with bristly pile, the pteropleuron with a stout bristle and other pile. Anterior basalare with stiff pile. Upper sternopleuron with numerous bristly hairs and the metapleuron with a vertical band of numerous long, stiff bristles. Metanotum pollinose only. Metasternum pilose, the postmetacoxal area membranous, the prosternum completely dissociated.

Legs: All the femora and tibiae stout and moderately elongate but only the first four femora a little swollen. The pile is scanty, fine, setate and subappressed, with a scanty ventral fringe of long, quite fine, erect bristly pile on the lower surface of all of the femora and tibiae. Bristles are exceptionally numerous and stout. The hind femur bears 6 lateral, a like number of ventrolateral, and distally 3 ventromedial bristles, besides 1 distal medial bristle. Dorsally at the subapex there is 1 stout bristle on either side and 3 at the apex medially, 1 laterally. The hind tibia bears 3 dorsolateral, 4 dorsomedial, 4 ventrolateral and 2 distal ventromedial bristles. The apex carries 9 bristles. Middle femur bears 3 anterior, 3 anteroventral distal bristles, 5 posteroventral bristles and 2 or 3 posterodorsal bristles near the apex. Middle tibia bears 6 anterodorsal, 7 posterodorsal, a like number of posterior bristles, 2 posteroventral and 2 anteroventral bristles. The anterior femur carries 6 dorsal, 6 posterodorsal, 2 posteroventral, and at the apex 3 anterior bristles. All of the bristles of this femur tend to be concentrated on the outer half. The bristles of anterior tibia like all the other are conspicuous and consist of 6 anterodorsal, 6 to 8 posterodorsal, 5 posterior, 2 posteroventral bristles. Apex of anterior tibia without spine. The claws are long, stout and sharp, the pulvilli well developed, and the empodium bladelike.

Wings: The marginal cell is narrowly open by about half its maximal width. Only the fourth posterior cell is closed and it has a very short stalk. Anal cell narrowly open or closed at the margin; the alula large, the ambient vein complete.

Abdomen: The abdomen is robust, a little flattened across the tergites. The sides curled down strongly, and the whole gently tapered. The pile is scanty, but subappressed and setate, with a little longer bristly pile on the sides of the first three tergites. The first tergite bears laterally a cluster of about 10 moderately stout bristles. Near the base of the second tergite laterally is a cluster of 8 to 15 long, slender bristles. Females with eight tergites, the last being nearly as long as the seventh and all of them progressively and slightly reduced in length beyond the second tergite which is longest. The acanthophorites each bear 5 stout, pointed spines; the last sternite is deeply cleft in the middle. Male not seen.

As I have not been able to learn that any of the three original species were designated as type of genus, I have designated *Tolmerolestes pluto*, the second species, as type of genus.

Distribution: Neotropical: *Tolmerolestes brethesi* Gemignani (1936); *fax* Lynch Arribálzaga (1881); *pluto* Lynch Arribálzaga (1881); *rubripes* Lynch Arribálzaga (1881).

Genus *Cylicomera* Lynch Arribálzaga

FIGURES 181, 478, 1034, 1043

Cylicomera Lynch Arribálzaga, Anal. Soc. Cient. Argentina, vol. 11, p. 115, 1881. Type of genus: *Cylicomera rubrofasciata* Lynch Arribálzaga, 1881, by present designation.

Medium size and robust flies which are related to *Dizonias* Loew and *Tolmerolestes* Lynch Arribálzaga. They are distinguished by the much smaller, slender dorsoventrally depressed proboscis, which besides being somewhat attenuate distally is scarcely extended beyond the face, and at most barely juts beyond the face. Also the ocellar callosity is much lower and less conspicuous although it does bear conspicuous bristles. The second segment of the antenna is minute, at most half as long as high. The third antennal segment is quite long and arched. Face slightly convex but without dorsal ledge. It bears numerous, remarkably stout, yet finely attenuate bristles. Scutellar disc without pile and middle of mesonotum with a wide, bare space. Length with antenna 15 mm.

Head, lateral aspect: The head is rather long because of the prominent face and occiput. The face is quite gently convex over most of the surface, a little more so above as it retreats shortly beneath the antenna; immediately beneath the antenna is a small extension separated by a shallow groove. The cheeks are moderately developed, the subepistomal area unusually long and oblique, the height of the face therefore reduced. Occiput prominent, especially below, because of the gradual recession of the eye. It bears slender bristles and bristly pile ventrally with the bristly elements comparatively numerous, forming 2 or 3 irregular rows submarginally along the middle of the occiput. Dorsally, however, the bristles are greatly reduced in contrast to *Tolmerolestes* and there are only 4 behind each upper eye corner. Upper occiput with some scattered bristly pile. Proboscis from the lateral aspect slender, becoming attenuate, narrow and pointed apically and only the base a little swollen. From the dorsal aspect it is rather wide, flattened and truncate at the apex and comparatively wider than *Dizonias*. The palpus is large, the first segment excavated, the second robust, short, narrowed at apex, with an apical pore and with a number of apical, lateral, and ventral stout bristles. The antenna is attached at the upper sixth of the head and is remarkably long, nearly twice the head length. The first segment is about six times as long as the very short second segment; this segment bears some moderately long bristles ventrally; the second segment bears only 2 setae ventrally. Third segment is about 3 times as long as the combined length of the first two or a little longer. This segment is a little narrowed towards the base and apex, arched on its lower surface, slightly concave above, and at the apex bears a small, transverse pit with concealed spine.

Head, anterior aspect: The head is nearly 1½ times as wide as high, the cheeks moderately developed. The face below the antenna is a little more than one-fourth the head width and slightly divergent below. The surface is thinly pubescent, pile is absent; except along the eye margin, the face is covered by numerous, quite stout, curved bristles of moderate length, extended down the upper half of the epistomal margin, and extending above to the subantennal crease. The front is rather short, wide, sunken, pollinose with a row of long, stout bristles along the eye margin and anteriorly a small patch of 3 or 4 setae on either side before the antenna. The front is a little widened, the vertex scarcely excavated, the ocellarium low, set posteriorly and opposite the posterior eye corners and bearing between the ocelli 2 pairs of bristles, one of them stout and behind the ocelli 1 pair.

Thorax. The mesonotum is thinly pollinose and feebly shining, rather low, and with greatly reduced pile consisting of a few scattered subappressed setae. There is a wide bare space in the middle; the acrostical bristles or setae are absent; but dorsocentral elements are distinct, moderately long, forming a double row and only differentiated behind the humerus. There is a large, submedial, bare space posteriorly. The humerus bears 4 or 5 stout bristles and a few setae. There are 3 or 4 weak posthumeral bristles. The lateral bristles are only moderately long but stout; the complement contains 2 notopleural, 2 to 3 supraalar, 2 suprapostalar, 2 postalar, and 1 or 2 pairs of scutellar bristles. The scutellum is flat basally, with 3 or 4 fine hairs laterally. Pronotal collar with 6 or 7 pairs of stout bristles, 5 or 6 similar bristles on the lateral pronotum, and other more slender elements. The posterior margin of the mesopleuron and the upper sternopleuron have some bristly pile. The pteropleuron has a stout conspicuous bristle. The metapleuron has a vertical band containing 5 or 6 bristles and bristly pile. Metasternum pilose, the postmetacoxal area membranous, and the prosternum fully dissociated.

Legs: The pile of the legs consists of coarse, appressed setae without ventral fringes of long pile. The hind femur and tibia are moderately elongate and slender; the first 4 femora quite stout and a little swollen. Bristles moderately abundant but rather short. Those of the first four legs more slender than those of the hind pair, except that the medial bristles of the hind femur are likewise slender. The hind femur bears 5 lateral bristles, 10 ventrolateral, 12 ventromedial, and a medial fringe of some 20 bristles. At the subapex dorsally there is a lateral bristle only and a weak bristle on either side of the apex. These tibiae bear 4 dorsolateral, 5 dorsomedial, 3 ventromedial, and 3 stronger ventrolateral bristles, and the apex has 8 or 9 bristles. Middle femur with 5 anterior, 8 anteroventral, and a regularly spaced posteroventral row of 14 bristles; there is also 1 bristle posteriorly at the subapex and longer bristly hairs at the apex. Middle tibia has 4 dorsal bristles, 3 or 4 anterodorsal, 5 anteroventral, and 5 posteroventral bristles. Anterior femur with 2 posterior bristles on the outer half, 3 or 4 short bristles on the anterior surface, and a transverse row of 5 or 6 bristles at the apex anteriorly. These tibiae have weak, appressed bristles which include 4 anterodorsal, 6 posterodorsal, and 4 posteroventral bristles. Apex without spine. Claws stout, strongly curved on the outer half, sharp; the pulvilli and empodium well developed.

Wings: The wings are broad, the marginal cell is open by a distance equal its maximal width; the third vein forks opposite the posterior crossvein; only the fourth posterior cell is closed and it is closed in the margin. The anal cell is open, the alula is three times as long as wide and the ambient vein is complete. The wings are smoky brown with a notch at the anal cell and at the end of the fourth posterior cell.

Abdomen: The abdomen is robust, wider than the mesonotum, but scarcely as wide as the thorax. The abdomen has parallel sides, a little flattened across the middle of the basal tergite; the pile is scanty, fine, appressed and setate and there is a patch of erect, slender bristles and bristly pile on the sides of the first and second tergites. Males with seven tergites, the seventh tergite a little less than half as long as the sixth. Females with eight tergites, the eighth being more than half as long as the seventh. Male terminalia fully rotate, the epandrium cleft to the base but overlapping; gonopod short and wide basally. The hypandrium is moderately prominent but narrow and broadly rounded apically; it is densely bristly and without any terminal process. The acanthophorites of the females are short and bear a few, short spines.

As I have been unable to learn of a previous designation, I select *Cylicomera rubrofasciata* as the type of genus.

Distribution: Neotropical: *Cylicomera fraterna* Lynch Arribálzaga (1881); *rubrofasciata* Lynch Arribálzaga (1881).

Genus *Sphageus* Loew

FIGURES 117, 474, 912, 921, 1576A, 1576B, 1740, 1901, 2051, 2055

Sphageus Loew, Berliner Ent. Zeitschr., vol. 10, p. 32, 1866. Type of genus: *Sphageus chalcoproctus* Loew, 1866, by monotypy.

These flies have strong facial bristles and elongate, slender antenna. The general form is similar to *Dizonias* Loew to which it is closely related, and from which it is distinguished largely through the presence of a cluster of many stout, close-set bristles on the anterior aspect of the middle femur. The third antennal segment lacks the excision present in *Dizonias*. Length 22 mm.

Head, lateral aspect: The head is comparatively short, the eyes flattened anteriorly. The face is moderately produced, more prominent below, pubescent and convexly arched from the eye margin to the middle. Cheeks developed and visible below the eyes. The occiput is well developed and bears dense, long pile and some moderately stiff bristles on the upper part; these bristles are situated medially and a considerable distance from the eye margin. Proboscis slightly flattened upon the upper half, with dorsal ridge, and nearly two times the length of the head; apex small but rounded and pilose. Palpus clearly of two segments; the first segment is troughlike and excavated and pilose; the second segment is perforate apically and bears numerous, long, bristly hairs. The antenna is elongate and slender and a little longer than the head. The first segment is 1½ times as long as the second segment. The third segment is more than twice the combined length of the first two segments and of uniform width; the apex is dorsolaterally open with a minute, enclosed spine; no microsegment present.

Head, anterior aspect: The face is moderately wide and slightly divergent below. It bears down the middle numerous, stiff bristles which begin close to but not quite at the antenna and are restricted to the middle of the face, except at the lower epistomal margin where they spread out laterally, fanlike, in one row. The bristles gradually become longer as they extend down the face so that at the epistomal margin they are as long as the proboscis. The front is pubescent and the sides along the eye margin have a band of pile. Front and vertex slightly wider than the upper face. Ocellarium with a tuft of pile; vertex shallowly excavated.

Thorax: The mesonotum has differentiated row of appressed acrostical pile and more abundant lateral pile. Humerus micropubescent and pilose and with 3 weak bristles. Laterally the mesonotum has 4 or 5 quite strong notopleural, 3 supraalar, 3 or 4 postalar, and 2 rows of weak postdorsocentral bristles. Scutellum with 2 pairs of stout, long bristles on the margin and scattered long hair on the disc; the margin is convex. Metanotum is micropubescent, bulbous and convex with no pile. There is abundant pile on posterior and upper mesopleuron and upper sternopleuron. The propleuron has 4 or 5 medium stout bristles on the convex lateral sclerite and 8 pairs on the pronotal dorsal collar. There is a subtriangular area of pubescence on the upper sternopleuron and posterior hypopleuron, a similar area on the posterior upper mesopleuron. Metapleuron convex with vertical band of stiff, long hairs or weak bristles. There is some scattered, appressed pile on the middle of the hypopleuron.

Legs: The hind femur gradually becomes a little stouter distally; it has abundant appressed pile and 4 lateral, 2 dorsal subapical, 1 dorsoapical, 3 medioapical bristles, and 1 dorsal subapical bristle; it also has a long, medial row of fine hairs down its entire length. Hind tibia with 5 dorsal, 3 or 4 dorsolateral, 3 ventrolateral, and 4 or 5 ventromedial bristles; at the apex it bears 1 medial, 3 ventral, 1 dorsal, and 1 lateral bristle. Middle femur with 1 or 2 subapical posterodorsal bristles. This femur bears a characteristic cluster of numerous, stout, black bristles in the middle anteriorly; this conspicuous mass of bristles separates these flies from its nearest relative which is *Dizonias* Loew. The anterior femur has 4 clustered, black, ventral bristles at the base, 2 lateral apical and 1 or 2 dorsal subapical bristles. The anterior tibia has a double row of dorsal bristles consisting of 6 or 7 pairs and at the apex 2 posterior, 3 ventral, 2 anterior and 2 dorsal bristles; there is no tibial spine present.

Wings: The venation as in *Dizonias*.

Abdomen: The abdomen is cylindroid with numerous, stiff hairs on the sides of the first tergite; no bristles are present on the remaining tergites. Second tergite laterally with long, fine pile; remainder of abdomen with extremely short, fine pile. Female with acanthophorites and lateral spines.

Distribution: Neotropical: *Sphageus chalcoproctus* Loew (1866). From Cuba.

Genus *Prolepsis* Walker

FIGURES 187, 459, 919, 928, 1763, 1766, 1947

Prolepsis Walker, Insecta saundersiana, vol. 1, pt. 2, p. 101, 1851. Type of genus: *Dasypogon lucifer* Wiedemann, 1828, as *Prolepsis fumiflamma* Walker, 1851, by monotypy.

Cacodaemon Schiner, Verh. zool-bot. Ges. Wein, vol. 16, p. 671, 1866. Type of genus: *Dasypogon lucifer* Wiedemann, 1828, original designation. Preoccupied by Thomas in Coleoptera, 1857.

Cacodaemonides Strand, Arch. Naturgesch. Berlin, vol. 92, pt. 8, p. 48, 1928. Unnecessary change of name.

Medium size, stout, robust flies with broad wings, mostly blackish in the males and the wings orange brown in the females. Related to *Dizonias* Loew, they are quickly recognizable through the presence of several extra cross veins in the subcostal cell and the remarkable multispinous armature of the middle femur. This latter character allies *Prolepsis* to the Cuban *Sphageus* Loew. *Sphageus* resembles *Dizonias* because they are more slender and have a more slender third antennal segment. The extra cross veins, however, separate them from all allied genera, and they are unique among the asilids. Length 15 to 20 mm.

Head, lateral aspect: The head is unusually long, the face moderately prominent, of reduced height because of the large, oblique subepistoma and the short, concave depression immediately below the antenna. For the most part the face is nearly plane, or barely convex. The occiput is poorly developed, but a little more prominent ventrally and medially. The eye is gently recessive below. The pile of the occiput is fine though bristly in character on the lower half and with only weak bristles dorsally. There is a patch of 6 slender bristles on each side behind the occiput. The proboscis is considerably longer than the face, attenuate beginning at the middle, so that the apex is narrow and the whole is directed forward or slightly upward. Palpus of two segments, the first segment hemicylindrical and excavated, the second elongate, slender with apical pore and with no bristles at the apex. There appears to be a trace of an antepenultimate segment present. The antenna is attached at the upper fifth of the head and unusually long and conspicuous. The first segment is twice as long as the second; each bears a few, fine bristles below and setae in the middle of the segments dorsally. The third segment is nearly three times the combined length of the first two, gently widened towards the middle so that it is considerably wider at this point, and bearing apically a short micro-segment, obliquely truncate, with small enclosed spine. The antenna in the females is bright orange, in the males black.

Head, anterior aspect: The head is nearly twice as wide as high, the face at plane of antenna one-fifth the head width and slightly divergent below. The face is pubescent only on a narrow band beneath the antenna and on the anterior margin of the cheeks. Pile is absent but, except for a transverse pubescent area beneath the antenna, the whole face is densely covered with long, stout bristles and some shorter, bristly hairs or slender bristles. The front is a little wider than the face, the vertex not narrowed. Front pollinose laterally and anteriorly, with a band of long, slender or bristly hair along the eye margin. Vertex almost without excavation, the ocellarium broad and low with 7 pairs of slender bristles and bristly hairs.

Thorax: The mesonotum is low and gently convex; it is dully shining with some triangular, pale pollinose spots and rather scanty, scattered, fine, nearly erect, bristly pile. Acrostical bristles are developed as a single or double row. Dorsocentral bristles, however, are developed only opposite the postalar region, where there are 4 rows, each containing 3 or 4 elements, none of them very long. Humerus with numerous, quite slender bristles and a little bristly pile. The lateral complement contains stout bristles of moderate length; it consists of 4 notopleural in an oblique row, 3 or 4 shorter and weaker supraalar, 1 long and 2 or 3 short postalar, and 2 pairs of scutellar bristles. The scutellum is moderately thick and convex, the base not flattened, the disc bearing a few stiff hairs. Pronotal collar with only a wide band of numerous, fine, long hairs. Posterior mesopleuron and upper sternopleuron, whole middle and upper margin of the pteropleuron and the posthypopleuron with considerable stiff pile. Metapleuron with a wide, vertical band containing numerous, long, bristly hairs. Metanotal callosity pollinose only; postmetacoxal area membranous. The prosternum is dissociated.

Legs: The hind femur and tibia are considerably elongate in contrast to the shortened middle pair which are shorter than the anterior pair. Hind tibia relatively slender; hind femur a little narrowed towards the base. Middle femur greatly swollen, especially towards the base and middle, and with a characteristic, dense patch of spikelike bristles. On the remainder of the legs the bristles are more or less reduced, though stout. The pile of the legs is coarse, appressed, and setate, the anterior and posterior femora with some erect, fine, ventral and ventromedial pile. The hind femur bears 3 or 4 lateral bristles on the basal half, 6 ventrolateral, 5 ventromedial bristles, a medial distal bristle, at the subapex 1 bristle dorsolaterally, at the apex only 1 or 2 very weak bristles. Hind tibia bears the following short bristles: 5 dorsolateral, 4 dorsomedial, and 1 ventrolateral. The middle femur anteriorly on the basal two-thirds has a dense patch containing 30 or 40 spikelike bristles; the more ventral elements near the middle of the femur are longer, and also continued ventrally on the base to include 20 or 30 additional, short, spikelike bristles. The middle tibia contains a dorsal row of 5 or 6 slender bristles. Anterior femur with 7 or 8 short, slender bristles posterodorsally and considerable other bristly hairs and anterodorsally towards the base a few short bristles. Anterior tibia with only poorly differentiated dorsal bristles; there are 6 posterodorsal bristles which are longer than the 8 or 10 anterdorsal bristles; posteriorly and ventrally are only poorly differentiated bristly hairs or very weak bristles. Apex without spine. Claws sharp, slender, bent at the apex; the pulvilli and empodium well developed.

Wings: The marginal cell is open by about half of its maximum width; subcostal cell has 2 to 6 extra crossveins. Wings broad, dark, smoky blackish in males but extensively brownish orange in females. The fourth posterior cell is closed with a short stalk, the anal cell is narrowly open or closed in the margin. The alula is large and the ambient vein complete.

Abdomen: The abdomen is robust, slightly shorter than the wing. At the base it is nearly or quite as wide as the mesonotum; it is a little tapered, and on the posterior half it is subcylindrical though broad and stout. Sides of the first two or three tergites with abundant, fine, erect pile, shorter on the third segment; remainder of pile coarse, appressed and setate. Bristles are confined to the sides of the first segment, where there are 7 or 8 slender bristles grading off into the numerous, bristly hairs. Abdomen shining, the pollen being very faint. Males with seven tergites, the seventh half as long as the sixth; females with eight tergites, the eighth tergite is more than half the length of the seventh. Male terminalia fully rotate, the epandrium large, obtuse, fully divided into superior forceps. The gonopod is large but blunt, the hypandrium short, obtusely triangular with a small, laterally compressed, short, terminal process, but no lappetlike extension. The genital cavity is widely open, the aedeagus tubular. Females with 5 or 6 pairs of stout, sharp, basally triangular spines on each of the acanthophorites.

Distribution: Neotropical: *Prolepsis lucifer* Wiedemann (1828) [=*fumiflamma* Walker (1851), *quadrinotata* Bigot (1878), *rufipennis* Macquart 1838, *satanas* Wiedemann (1828)].

Country unknown: *Prolepsis crabroniformis* Schiner (1867).

Genus *Dasypecus* Philippi

FIGURES 2525, 2526

Dasypecus Philippi, Verh. zool.-bot. Ges. Wien, vol. 15, p. 692, 1865. Type of genus: *Dasypecus heteroneurus* Philippi, 1865, by present designation.

The following is Philippi's description in translation:

> Body rather wide, with depressed pile. Head strongly developed transversely. First antennal segment rather elongate; the third segment equals the preceding, and at the same time is noticeably narrowed; the terminal style equals half the segment. First basal cell of wing elongate; there are four posterior cells, three of which are closed; the second and third are far removed from the wing margin. Legs robust, rather short and densely hairy. Pulvilli present. Through its dense pile and the character of the wing veins very easily distinguished.

Distribution: Neotropical: *Dasypecus heteroneurus* Philippi (1865); *latus* Philippi (1865). These flies are from Chile.

Genus *Dasycyrton* Philippi

FIGURES 2524, 2527

Dasycyrton Philippi, Verh. zool.-bot. Ges. Wien., vol. 15, p. 701, 1865. Type of genus: *Dasycyrton gibbosus* Philippi, 1865, by monotypy.

The following is Philippi's description in translation:

> Head wider than the body. Front concave; mystax and proboscis as in Asilidae (Asilicorum). Face not prominent. first segment of antenna cylindrical and hairy, the first much longer. The third segment equal to the preceding segments combined, slender, cylindrical; it terminates in a style barely more slender and equal half the length of the segment. Thorax strongly arched or humped and strongly compressed. Abdomen compressed and sickle-like. Discal cell of wing a little widened; all posterior cells open. Tibiae with long pile but not very spiny (?bristly).

Distribution: Neotropical: *Dasycyrton gibbosus* Philippi (1865). From Chile.

Genus *Teratopus* Loew

FIGURES 114, 470, 947, 956, 1720, 1825, 1915

Teratopus Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 14, p. 346, 1858. Type of genus: *Asilus cyaneus* Fabricius, 1781, by original designation.

Flies of medium size or small, characterized by the exceptionally protuberant face; the upper gibbosity forms a conspicuous, swollen, liplike ledge; also by the well developed occiput, open marginal and anal cells, closed fourth posterior cell. Distinguished from *Gonioscelis* Loew by the slender, more elongate hind femur and the absence of raptorial modifications. The only known species is completely and uniformly blue-black in color, including wings. Related to the *Stenopogon* Loew group, although the head is not circular. Length 12 to 16 mm.

Head, lateral aspect: The ventral three-fourths of the face is quite protuberant and gibbous, the upper fourth nearly plane with the eye. The gibbous portion is convex in both lateral and vertical profile, and the upper edge of the gibbosity is exceptionally abrupt and ledgelike. Eye nearly as well developed below as above. Occiput thick and tumid, considerably expanded beginning at a point approximately opposite the insertion of the antenna. The pile of the occiput is abundant, stiff and bristly, the upper occiput has only stiff bristles irregularly disposed over the entire medial surface. The proboscis is short, robust, not extending beyond the face; it is directed horizontally forward, with a prominent dorsomedial ridge ending a short distance from the apex; the base below has a few stiff, long hairs; the apex bears only fine, short pile ventrally and is bluntly pointed. Palpus with two short segments; the first is excavated, the second robust, with a large, apical pore and with bristly pile ventrally. The antenna is attached at the upper fourth of the head. Antenna slender, a little shorter than the head, the first segment is two times as long as the second, the second is short, beadlike. The third segment is two times the combined length of the first two segments; it is elongate, slightly attenuate apically, rather strongly compressed laterally on the basal half, and obliquely truncate, with a short, obtuse, microsegment carrying an apical spine.

Head, anterior aspect: The head is a little wider than high. The face below antenna is about one-fifth the head width and divergent below to one-half the width. Subepistomal area comparatively small, slightly oblique. Entire face, except the steep sides of the protuberance, covered with quite long and quite stout bristles. Front moderately divergent, compared to the width of the upper face; the vertex is slightly convergent. The lateral margins of the front have a row of 10 bristles as long as those of the upper occiput. Vertex scarcely or not at all excavated; the ocellarium large but low, bearing 2 pairs of stout, long bristles across the middle and 2 or 3 pairs behind the ocelli which are rather strongly proclinate. All upper occipital bristles rather strongly proclinate. Anterior eye facets only moderately enlarged.

Thorax: The thorax is polished and bare, or with extremely sparse micropubescence which does not obscure the metallic ground color. There is present a double acrostical row of fine bristles; the dorsocentral bristles are developed throughout the full length of the thorax but become longer and stouter on the posterior half of the mesonotum. Humerus with 5 or 6 bristles and bristly hairs; notopleuron with 1 bristle and 10 or 15 bristly hairs; supraalar, postalar, and scutellar margin with several stout bristly hairs. Slopes of the metanotum micropubescent only. Scutellum thick and convex. Pronotum, propleuron and upper sternopleuron with stout, bristly hairs; mesopleuron, metapleuron, and lateral metasternum bare; postmetacoxal area small and membranous; prosternum dissociated.

Legs: The hind femur with slender bristles which consist of 8 lateral and an oblique row of 3 or 4 short lateral bristles at the apex, a similar row medially at the apex, besides 8 or 10 ventrolateral of varying length, 7 or 8 very short ventromedial, together with 2 or 3 long medial bristles near the middle and with 2 long, slender bristles ventrally on the basal third. Hind tibia as long as the femur, gradually thickened distally. The apex of the hind femur bears 2 lateral, 4 medial, and 4 ventral bristles. Hind basitarsus quite stout, the second segment also stout; the first segment is nearly as long as the remaining 4 segments. Middle femur with 7 or 8 anterodorsal, 5 or 6 anterior, 5 or 6 stout anteroventral, and 8 long, stout, posteroventral bristles. Middle tibia with long, stout bristles, 8 anterodorsal, 8 posterodorsal, 6 posteroventral, and 2 ventral bristles confined to the outer half, besides 4 anteroventral on the outer half. Anterior femur with 5 stout anterior bristles on the outer half, besides an additional vertical band at the apex of 4 or 5 bristles. This femur has 6 to 8 dorsal and 5 or 6 posterodorsal bristles. Anterior tibia with long, sharp, dorsal bristles consisting of 5 or 6 anterodorsal and 7 or 8 posterodorsal, also 6 posteroventral and 3 ventral. Apex of this tibia without spine; the anterior basitarsus stout and rather short but nearly as long as the succeeding three segments, each of which are quite short. All tarsi end in stout, sharp claws, well developed pulvilli and a short empodium strongly swollen at the base.

Wings: The wings are deeply and uniformly tinged with black. All cells open except the fourth posterior cell, which is closed with a short stalk; the third vein forks far beyond the end of the discal cell; middle end vein of the second basal cell is short. Alula well developed but not deep; ambient vein complete.

Abdomen: The abdomen is comparatively robust basally and moderately long and tapered. The pile consists of appressed setae or short, stiff hairs in the middles of the tergites and longer, scattered stiff hairs along the lateral margins. The pile is longer on the first two segments but there are no bristles. Males with seven tergites and a very narrow liplike protrusion of the eighth. Females with eight tergites, with the eighth at least half as long as the seventh. Male terminalia small, short, and not rotate. The epandrium is fully cleft, slightly divergent, each apex obtuse, and with a large, oblique proctiger lying between and projecting above. The gonopod is moderately prominent but shorter. The hypandrium if present is quite short and recessed beneath the short eighth sternite. Females with acanthophorites and 6 pairs of moderately long spines.

Distribution: Ethiopian: *Teratopus cyaneus* Fabricius (1781).

Genus *Archilestris* Loew

FIGURES 118, 151, 473, 1015, 1024, 1826, 1851

Archilestes Schiner, Verb. zool.-bot. Ges. Wien, vol. 16, p. 672, 1866. Type of genus: *Dasypogon capnoptera* Wiedemann, 1828; designated by Coquillett, 1910. Preoccupied, Neuroptera, 1862.

Archilestris Loew, Berliner Ent. Zeitschr., vol. 18, p. 377, 1874. Change of name.

Pseudoarchilestes Bigot, Ann. Soc. Ent. France, ser. 6, vol. 9, Bull., p. 183, 1889. Unnecessary change of name.

Pseudoarchilestes Bigot, Wiener Ent. Zeitung, vol. 9, p. 96, 1890, *lapsus*.

Large or very large flies of sombre coloration, exceptionally long legs, apilose face on which the bristles are restricted to a single row of stout, long elements above the epistoma. The antenna is elongate, especially the third segment which bears stout, dorsal bristles and short fused microsegment. The pile is greatly reduced, leaving a bare aspect. The tarsal segments are rather shortened. Length 22 to 40 mm.

Head, lateral aspect: The head is of moderate length, the face well developed, though never produced or gibbous, it gradually becomes a little more extensive below and its surface is not quite plane, being very slightly convex. The occiput is poorly developed throughout; its pile is distinctly coarse and bristly below and abundant, but near the ventral fifth it changes to a single row of rather long, stout bristles which are continuous with a postvertical patch of 9 bristles. The proboscis is comparatively large, somewhat compressed laterally, especially on the outer half; the base is swollen, the medial ridge prominent, especially over the middle and basal portion. The upper surface of the proboscis is gently arched, the lower surface slightly concave, the apex bluntly pointed. Palpus large, the first segment is hemicylindrical and excavated, the second clavate and porate, with numerous stout bristles. The antenna is attached near the upper third of the head and is a little longer than the head. The first two segments are subequal and together shorter than the third segment, and each bears numerous bristles and bristly setae above and below. Second segment with at least 3 longer, stouter, ventral bristles. The third segment is slender, little or no wider than the second segment, of nearly uniform length, a little tapered near the apex and with numerous bristles dorsally. At its apex is a short, fused microsegment with an oblique, open pit and a spine.

Head, anterior aspect: The head is unusually wide and the eyes flattened anteriorly, the central facets greatly enlarged. The face is densely pollinose, without pile, and bears above the epistoma a single row of very stout, long bristles consisting of 6 to 8 pairs. Subepistomal area large, either oblique or nearly vertical. Front as wide as the face, pollinose, with a row of 5 or 6 slender bristles along the eye margin. The vertex is moderately excavated and has 1 or 2 pairs of long, stout bristles between the posterior ocelli.

Thorax: The thorax is dull, the pile reduced to fine, scattered setae. There is an acrostical and a dorsocentral row of bristles, the latter with 3 or 4 long elements posteriorly. The lateral complement of bristles contains 2 or 3 anterohumeral, 1 posthumeral, 2 or 3 notopleural, 2 supraalar, 2 postalar, and 1 to 2 pairs of usually crossed scutellar bristles. Propleuron with slender bristles on the collar; on the posterolateral element is a dense tuft of bristly pile and on the lateral propleuron a single stout bristle. Sternopleuron with a tuft of many coarse hairs. Metapleuron with a vertical row of 4 to 11 bristles, often stout. Remaining pleuron without pile. Metasternum with scattered, long hair. Postmetacoxal area membranous; prosternum dissociated.

Legs: The legs unusually densely setate, the bristles reduced. The hind femur has only 2 stout bristles; these are lateral bristles on the basal third. Middle femur with 1 or 2 anterobasal, 1 posterobasal, and 1 posteroapical bristle. The anterior femur has 4 posterior and 1 anterior bristle on the basal third. Tibial bristles comparatively short and stout; hind tibia with 3 dorsolateral and 2 dorsomedial, 3 ventrolateral, and 3 weak ventrobasal bristles. Anterior tibia with 4 and middle tibia with 5 bristle rows, usually containing 4 elements each. The anterodorsal elements of the middle tibia and the single ventral distal element of each tibia is exceptionally stout and long. Protibial apex without spine. Claws sharp, only slightly curved, the pulvilli and the flat empodium are each long.

Wings: The marginal cell is open but reduced at apex. The fourth posterior cell is closed and stalked and the end vein of this cell and the lower end vein of the discal cell are nearly aligned. Anal cell narrowly open. The venation is therefore quite like *Diogmites* Loew.

Abdomen: The abdomen is elongate, cylindroid, very slightly tapered. At the base not quite as wide as the mesonotum in most species. The pile of the abdomen is reduced to numerous, fine, small, appressed setae. Bristles are restricted to the first tergite, where there may be from 3 to 10 pairs. Males with eight tergites, the last quite short. Females with eight tergites, the last being at least half as long as the seventh. Males with epandrium small and fully cleft, the sides tightly apposed, except apically. The gonopod is moderately large, the hypandrium large and extensive; terminalia fully rotate. Females with 6 pairs of stout, long, sharp spines on the acanthophorites and additional, ventral, spinous setae.

Distribution: Neotropical: *Archilestris capnopterus* Wiedemann (1828) [=*albitarsis* Macquart (1846)]; *excellens* Enderlein (1914); *fulvigaster* Bigot (1878); *longipes* Macquart (1838); *magnificus* Walker (1854).

Genus *Dicranus* Loew

FIGURES 163, 476, 948, 957, 1696, 1819, 1934

Dicranus Loew, Bemerkungen über die Familie Asiliden, p. 13, 1851. Type of genus: *Dasypogon rutilus* Wiedemann, 1821, by monotypy.

Macronix Bigot, Ann. Soc. Ent. France, ser. 3, vol. 5, p. 549, 1857. Type of genus: *Dasypogon longiungulatus* Macquart, 1849, by monotypy.

Large, dark colored and rather stout, elongate flies of bare aspect due to the reduced pile; bristles are quite stout but not very numerous. They will be quickly recognized by the long, stout, nearly straight claw, which appears to have a second, shorter, toothlike claw at its base; this additional clawlike structure is the exaggerated, apical bristle of each side of the end tarsal segment. Pulvilli absent and empodium reduced to a tiny stub. Length 25 to 35 mm.

Head, lateral aspect: The face is moderately developed and becomes a little more prominent below, chiefly because the recession of the eye exposes the face to a greater extent. Across the middle the face is very slightly concave. Occiput only moderately developed and only submedially developed. It bears below rather long, dense, silky hairs which change below the middle to weak bristles; at the upper third the bristles, while still comparatively slender, are stronger, long, and curved. Ventral portion of the head behind the proboscis with a dense fringe of quite long, yellow pile. Proboscis of moderate length, held obliquely forward or downward; the lower surface is nearly plane, the upper surface rather strongly arched and accentuated by the prominent dorsal keel. Apex with only quite fine hairs. Base below with a few long hairs and 2 long, oblique hairs in the middle. Palpus of two segments, the first excavated, the second a little longer, robust, widest in the middle with apical pore and slender, bristly hairs. The antenna is attached at the upper third of the head, the first two segments of equal length and each is about 1½ times as long as high. First segment with 1 setae above and at the base ventrolaterally 4 setae directed forward. Second segment with numerous setae above and below and 2 conspicuous ventral bristles. Third segment nearly twice the combined length of the first two segments, somewhat widened or dilated along the middle, more narrow at base and distinctly tapered on the outer third. Dorsally it bears about 7 bristles. At the apex there is a minute opening with a short, exposed spine.

Head, anterior aspect: The head is twice as wide as high; the face is nearly one-fourth the head width, distinctly wider below, without pile but densely covered with pale, appressed micropubescence. It bears 2 close-set rows of long, quite stout, pale bristles set transversely above the epistoma. These rows contain at least 30 elements. Front wider than upper face, sunken, pollinose with a dense patch of bristly pile along the eye margin and another submedial patch of similar, appressed pile on each side. Vertex slightly narrowed, moderately excavated; the ocellarium is quite large and obtuse with large ocelli and on each side a row of 4 slender bristles.

Thorax: The thorax is large and robust, the mesonotum low and rather flattened with the anterior margin abrupt. The surface of the mesonotum in great part is bare with wide, bare, medial stripe without pile of setae or bristles. There are fine, dorsocentral setae anteriorly which behind the suture become long, slender bristles, 4 in each row, besides additional bristly hairs. Lateral bristles exceptionally long and stout. There are 3 humeral bristles set anteriorly, 3 notopleural, 3 supraalar, 3 on the postalar callosity, and 1 or 2 pairs on the scutellar margin. The scutellum is thick, quite flat on the disc without a basal crease except laterally and the bulbous, metanotal callosity is pollinose only. Propleuron with 1 stout bristle laterally, the pronotum with weak bristles and pile. Lower cervical sclerite with quite dense, long, fine pile. Pleuron pollinose, without pile on the mesopleuron but with 20 or more long, fine hairs on the upper sternopleuron; metapleuron with 4 long, stout bristles and numerous long, slender bristles or bristly hairs. Postmetacoxal area membranous; prosternum fully dissociated.

Legs: The legs are moderately elongate; all the femora are stout and rather densely appressed setate, and almost without bristles. The hind femur lacks bristles; at the apex it has 3 stiff, dorsolateral and 4 stiff, dorsomedial hairs which extend past the apex. Ventrally it has on each side a row of 7 or 8 long, slender, nearly erect, bristly hairs. The bristles of the tibia, while not numerous, contain some long, quite stout elements and some quite slender and weak. Hind tibia as long as the femur, stout, of uniform thickness and with 1 basal dorsomedial bristle, 2 very slender dorsomedial elements along the middle, 1 weak basal dorsolateral, 1 exceptionally stout, conspicuous dorsolateral bristle at the basal third and also 2 equally prominent ventrolateral bristles situated at the middle and beyond. The apex has 1 dorsolateral, 1 lateral, and 3 ventral bristles. Hind basitarsus more slender than tibia, a little longer than the next two segments and the end tarsal segment unusually long, wider and stouter than the preceding two segments. Middle femur with a single, stout, posterodorsal, subapical bristle, and also a few long hairs ventrally; middle tibia with 2 weak, basal anterodorsal and along the middle 2 quite stout, anterodorsal bristles. Posterodorsally this tibia has 2 or 3 slender bristles in the middle and ventrally 2 long, oblique, spikelike bristles at the middle and beyond.

Anterior femur somewhat arcuate anteriorly and a little compressed laterally, without bristles but with 6 or 7 fine, long hairs. The anterior tibia has 4 short anterodorsal, 4 slightly longer posterodorsal bristles and the same oblique, stout, ventral bristles as found on the middle tibia; no spine or protuberance is at apex. Middle and anterior basitarsi and their respective end tarsal segments formed as they are on the hind leg. All tarsi end in very long, exceptionally large, stout, sharp claws, curved only at the apex, with an additional claw arising on each side at the base, which is much shorter than the other claw. Pulvilli absent, ventral surface of the end tarsal segments with an apical, paddlelike protuberance.

Wings: The wings are hyaline, in part grey from dense villi. Marginal cell open by less than its maximal width. Anterior branch of the third vein rather strongly arched forward, ending above the wing apex. First posterior cell widely open, fourth posterior cell closed and stalked, the vein closing this cell and the medial crossvein nearly aligned in a row. Posterior crossvein nearly or quite absent. Anal cell open, alula large. The ambient vein is complete and bears a comparatively long, dorsal and separate ventral fringe.

Abdomen: The abdomen is robust at the base, though not as wide as the mesonotum. It is gently tapered beyond the first segment but still rather stout and subcylindrical on the ultimate segment. Surface covered with abundant, appressed, coarse setae and along the sides of the first, second, and third segments are a number of fine, long hairs. Sides of first segment also with 4 long, stout bristles. Males with seven tergites and a mere linear trace of the eighth on the left side. Male terminalia rather large and rotate and conspicuous, chiefly because of the laterally extended and convex gonopod. Whole terminalia similar to *Diogmites* Loew. Hypandrium large, more or less triangular with the lateral margins gently convex. Epandrium cleft with the proctiger between and both the epandrium, the apex of the hypandrium and especially the apical part of the gonopod with numerous, long, bristly hairs and slender bristles, some of which become quite stout on the distal part of the gonopod.

Distribution: Neotropical: *Dicranus jaliscoensis* Williston (1901); *rutilus* Wiedemann (1821); *schrottkyi* Bezzi (1910) [=*longiungulatus* Macquart (1849), not Macquart (1838)]; *nigerrima* Carrera (1955); *tucma* Lynch Arribálzaga (1880).

Bezzi (1910c) changed the name of *Dasypogon longiungulatus* Macquart, 1849, to *Dicranus schrottkyi*, new name, on account of prior use of the name *longiungulatus* by Macquart (1838) in *Dasypogon*. Since the *longiungulatus* Macquart (1849) is a *Dicranus*, and *longiungulatus* Macquart (1838) is said to be a synonym of *Allopogon vittatus* Wiedemann (1828), I believe that further study will show that this is an unnecessary change of name.

Alyssomyia, new genus

FIGURES 154, 480, 1013, 1022, 1830

Type of genus: *Hypenctes brevicornis* Philippi, 1865.

Small, cylindroid, short pilose flies; the wings much shorter than the abdomen. Face distinctly and clearly plane, nowhere convex. Mesonotum with long, dorsocentral bristles beginning anteriorly. While the third antennal segment is not sharply contracted or narrowed at the base, these flies are probably related to *Hypenetes* Loew. They are readily separated from *Zabrotica* Hull by the plane face. Length 11 mm.

Head, lateral aspect: Length of head is normal. The face is nearly straight vertically and is visible only on the lower two-thirds, where because of the narrowing of the eye it is a little more conspicuous. Occiput moderately prominent in the middle, more so below and obliterated near the vertex. The occipital pile is scanty, stiff, moderately long and scattered over the medial area but becomes sublateral to the eye margins ventrally where it is longer, opaque white and more abundant. Bristles begin at the lower third of the occiput, are distinct but not stout, and consist of 17 pairs of white bristles slightly curved forward. The proboscis is short, slightly expanded basally from either view with a low, dorsomedial ridge; the apex is strongly tapered from the upper surface to a moderately sharp point. The apex bears fine pile; base below with some long hairs. Palpus of two segments; first segment excavated, second segment microporate sublaterally; pile scanty but long. The antenna is attached to the upper third, is rather short, the first two segments nearly equal in length with the first slightly longer; the second segment is beadlike. The third segment is laterally flattened and gradually expanded from the base until at the outer third it is more than twice as high as at the base; it is then rapidly attenuate from below to its apex which bears a short, thick, oblique microsubsegment to which is attached a short, stout, distinct spine. First segment with 3 to 4 rather long, stout, white bristles below, 2 shorter elements laterally; second segment with 2 long, stout bristles ventrally.

Head, anterior aspect: The face below antenna is one-fourth the head width and slightly divergent below. Face pubescent, without pile, but with a rather dense, vertical band of stout, moderately long, pale, or blackish bristles on either side of the midline, which extends upward slightly more than half the length of the face. Each group contains about 12 bristles. In addition the epistomal margin bears at least 12 pairs of still longer, stout, white or sometimes dark bristles. Subepistomal area short, nearly horizontal and concave. The front is narrowly divergent above the antenna and the vertex of practically the same width as the upper front. Sides of front with a single row of 8 moderately stout bristles. Ocellar protuberance low with 5 pairs of white bristles. Anterior eye facets strongly enlarged and zoned.

Thorax: The mesonotum is pollinose laterally, the pleuron also pollinose. The mesonotal pile is very scanty, appressed, stiff, pale setate; it is almost bristly and is restricted to patches; there is a band bordering the humerus medially and posteriorly, a patch above the wing, a patch in front of the scutellum, a single row of acrostical bristles anteriorly, instead of pile. Dorsocentral elements consist of 7 stout bristles in each row, 2 of them opposite the humerus, 2 opposite the notopleural area. Humerus pilose and with 5 pale bristles; lateral bristles long and stout and chiefly pale. There are 3 notopleural bristles in an oblique row, 1 postsupraalar, 2 postalar, and 3 pairs of bristles on the scutellum. Scutellum moderately thick with flat disc, pubescent only. Pleuron with scattered, long hairs, which are quite stiff, the pronotum with 7 or 8 pairs of weak, white bristles. Upper margin of mesopleuron with a few short, thick hairs; posterior margin and anterior extension with a cluster of dense, mostly flat, appressed, thick, white pile. Upper sternopleuron with 11 similar hairs. Upper anterior pteropleuron and posterior hypopleuron with a cluster, the latter without a differentiated patch spot of micropubescence. Metapleuron with a vertical band containing 7 or 8 stout, rather long, pale bristles. Metanotal slopes pubescent only; metasternal slopes with 10 to 12 fine hairs. Metasternum with 4 or 5 hairs on each side. Postmetacoxal area membranous; tegula pubescent only.

Legs: All the femora are distinctly though moderately thickened. All pile and bristles pale, the pile flat appressed, the bristles stout but of moderate length, mostly oblique. The hind femur bears a transverse row of 3 apical bristles, which tend to be medial rather than dorsal. There is a single subapical dorsal, 4 dorsolateral, 4 lateral, 5 ventrolateral, and 7 ventromedial, which are slightly longer. Hind tibia bears 4 dorsal, 4 lateral, 3 ventral bristles and its apex has 1 dorsal, 2 medial, 1 lateral, and 3 ventral bristles. Hind basitarsus considerably shorter than the remaining tarsi. Middle femur with 3 dorsoposterior bristles near the apex, 1 anterior subapical and 1 near the base, and 5 or 6 posteroventral elements. This tibia has 4 posterodorsal and 5 anterodorsal bristles, the middle two of which are much longer and stouter. Ventrally there are 4 bristles, the basal 2 slender, the middle and outer element stout and long. The apical circlet contains 9 bristles. Anterior femur with 4 dorsal and near the outer third 1 or 2 additional bristles posterodorsally; ventrally there are 5 or 6 extremely fine, weak bristles or stiff hairs. This tibia has a double row of dorsal elements containing 5 or 6 bristles each; a row of 4 or 5 short posterior and a row of 2 long, stout, ventral bristles, but with some additional, long, stiff, oblique hairs. Apical circlet of 9 bristles, without spine. All tarsi end in slender pulvilli, at most two-thirds as long as claw, and long, stout, basally thickened empodium, and sharp claws. In the male the claws appear to be much longer than in the female.

Wings: The marginal cell is open; the anterior branch of third vein ends well above wing apex; fourth posterior cell closed with a long petiole. Anal cell closed in the margin. Second basal cell closed with 3 veins. Alula large; ambient vein complete.

Abdomen: The abdomen is cylindroid and slightly tapered, considerably longer than the wing. Tergite one is only slightly swollen laterally. Pile of abdomen moderately abundant but flat appressed and especially coarse in the male; the middles of the tergites are largely bare, the sides of the first tergite and base of second with some erect pile. All of the female pile shorter, setate and either erect or suberect. Sides of abdomen considerably rolled, the sternites with short, stiff pile, flat appressed in the male, erect in the female. The first tergite has 5 or 6 pairs of lateral bristles; none on remaining tergites. Eight tergites present in the male, the eighth tergite one-sixth as long as the seventh, the seventh three-fourths as long as the sixth. Eight tergites in female, the eighth not quite half as long as the seventh. Male terminalia rather large, elongate; the epandrium emitting on each side an extremely long, obtuse, posteriorly directed process. The hypandrium emits a single, medial, long, cylindrical process directed forward, curved and nearly as long as the epandrial lobes. Female acanthophorites with 8 pairs of concave spines; lateral spines apparently absent; ventral plate apically and medially split on the outer third.

Distribution: Neotropical: *Alyssomyia brevicornis* Philippi (1865).

Genus *Scylaticus* Loew

FIGURES 158, 568, 1021, 1030, 1943

Scylaticus Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 14, p. 346. 1858. Type of genus: *Scylaticus zonatus* Loew, 1858, by monotypy.

Euthrix Philippi, Verh. zool.-bot. Ges. Wien, vol. 15, p. 690, 1865. Type of genus: *Dasypogon venustus* Philippi, 1865. Preoccupied, Lepidoptera, 1830.

Rather small flies, sometimes quite small, occasionally medium size. They are rather readily recognized by the subglobular head carrying a convex face and exceptionally tumid occiput. The front is divergent and the long antenna has an especially long, laterally compressed third antennal segment. The species are almost always bare and short pilose, pollinose flies to which *Scylaticus leoninus* is a striking exception. Length 8 to 17 mm.

Head, lateral aspect: The face is generally slightly protuberant on the upper half and usually a little more protuberant below and gently convex. The lower facial area is often marked off slightly by a transverse, gentle depression. The eye is long, strongly convex anteriorly and moderately convex behind. The occiput is unusually prominent and tumid throughout its entire length; it gradually slopes down to the eye margin at the vertex. The pile of the occiput is long and fine below, becoming stiff and bristly in the middle with well developed, stout bristles dorsally, which extend from opposite the ocelli over the whole interior dorsal surface of the occiput. From the dorsal aspect the eyes are recessive anteriorly leaving in most species a greater portion of the occiput exposed. The proboscis is laterally compressed, obtusely rounded, not swollen towards the base and tending to be subcylindrical and slightly tapered in many species. The apex has some fine pile directed outward; base with only a few fine hairs below. Palpus clearly of two segments, the first segment short, excavated, the second rather long, slender, cylindrical and somewhat attenuate apically. It has a large apical pore, is obliquely truncate and characterized by reduced pile or bristles distributed over the middle portion laterally and ventrally; rarely with a bristle at the apex.

Head, anterior aspect: The face below antenna one-fourth of head width, divergent below to one-third the width. The front is divergent likewise. Subepistomal area small, slightly oblique, concave and bare. The face is pubescent, bearing in the type of genus numerous, long, slender bristles. These bristles usually confined to the lower half, excepting the narrow lateral margin, but extend all the way up the entire face in abundance in several species: *Scylaticus punctatus*, *exquisitus*, *leoninus* and *pantherinus*. The antenna is attached at the upper fourth of the head; it is elongate and often quite elongate; the first segment is two or three times as long as the second, the second segment beadlike. The third segment is strongly compressed laterally, rather high or wide in lateral aspect and tends to be curved laterally outward and slightly attenuate from the middle towards either base or apex. This segment carries a distinct microsegment, sometimes two; the apex is obliquely truncate with dorsal, circular opening and exposed, dorsal spine within. Pile of first two segments long and stiff and bristly, especially on the first segment where it is abundant and where the bristles may be quite stout. The front is of moderate length, pollinose, with a tendency to be marked off by longitudinal grooves. Pile of front scanty, with a few fine, long hairs submedially, and characteristically with 4 or 5 bristles, usually stout, along the eye margin and sometimes with additional hair on the outer portion. Ocellarium large, the vertex but little excavated; the front and vertex are characteristically divergent, the ocellarium bears 3 or 4 pairs of bristly hairs across the middle, rather short and curled forward and with others behind the ocelli. Anterior eye facets very little enlarged.

Thorax: The thorax is pollinose; pile of mesonotum long, but rather scanty, acrostical bristles or hairs are present but irregular; dorsocentral elements become longer on the posterior half of the mesonotum. In the type of genus the following complement of bristles is present: no humeral, 4 notopleural, 4 supraalar, 3 postalar, 3 pairs of scutellar bristles. Scutellum flattened, pubescent with a few marginal hairs. Propleuron with abundant, long pile on all portions; some 6 pairs of long, stout bristles on the collar but long, stiff pile only on the dorsal posterior section. There are usually 1 to 3 slender, humeral bristles present. Mesopleuron with abundant, long pile posteriorly and dorsally; hypopleuron apilose; pteropleuron with a few hairs, sometimes a single stout bristle. Hypopleuron apilose; metapleuron with a narrow vertical band of 15 or more bristles, many of them stout. Pteropleural bristles sometimes present. Metanotal slopes micropubescent only; lateral metasternum and the ventral metasternum pilose; postmetacoxal area membranous. Tegula with bristles and anterior basalare with 5 or more long, well developed bristles, and additional hairs; this represents a characteristic feature.

Legs: The femora are rather stout without being thickened or swollen. The dorsal pile of the hind femur is abundant, appressed and setate; ventral pile of all moderately abundant, fine, rather long and erect. The type of genus shows the following complement of bristles: on the hind femur 4 or 5 long, stout lateral, 2 dorsal near the apex and also fine, short, apical medial bristles. This tibia has 5 well developed dorsal, 4 lateral, 4 or 5 ventral bristles; the ventral surface is appressed setate but without brush or setae. The apex has 1 dorsal, 1 medial, 2 lateral, 3 ventral bristles. Middle femur with 1 stout bristle anteriorly and 1 posteriorly near the apex, its tibia has 6 slender, anterodorsal, 7 or 8 posterior dorsal, a like number of still more slender posterior bristles besides 7 long, slender ventral bristles. Anterior tibia with 7 or 8 short, anterodorsal, a like number of slender dorsal bristles and posteriorly with 12 slender posterior elements which are scarcely more than stiff hairs. Tibial apex without spine, basitarsus as long as the next three segments, which are beadlike; tarsi end in stout claws which are only a little sharp, long pulvilli and empodium long and basally swollen.

Wings: The marginal cell widely open; anterior branch of the third vein slightly sigmoid, ending a little before the apex and arched gently at the base; posterior branch ending a short distance behind the apex. The first posterior cell is widely open, fourth narrowed, sometimes considerably and closed with a short stalk in some species. The anal cell is usually widely open; it may be closed in the margin or narrowly closed in those species which have the fourth posterior cell narrowly closed. Second basal cell with the middle vein short, or almost wanting; alula short; the ambient vein complete.

Abdomen: The abdomen is cylindrical, or with parallel sides and slightly flattened in the middle of the tergites. It is as wide as the mesonotum and bears short, fine, appressed, suberect pile; it is usually strongly pollinose and usually banded or spotted. *Scylaticus leoninus* is an exception in that the abdomen is everywhere densely long, erect pilose, the pile coarse, stiff and brownish yellow. Male with eight tergites, the seventh and eighth both reduced to from one-half to two-thirds the length of the sixth; sometimes only a minute trace of the eighth segment is exposed. Female with eight tergites, the eighth one-half as long as the seventh. Male terminalia rotate one-half; conspicuous. Epandrium large, elongate, completely divided into forceps; gonopod conspicuous and well developed, the hypandrium large, triangular and undivided. The female acanthophorites bear some 5 pairs of rather inconspicuous, lateral, spoonlike spines; the ventral plate is more or less pinched together and divided nearly or quite to the base.

Distribution: Neotropical: *Scylaticus cruciger* Hermann (1921); *distinguendus* Lynch Arribálzaga (1881); *fulvicornis* Macquart (1849); *nitidigaster* Macquart (1849); *philippi* Schiner (1868); *rubripes* Bigot (1878); *ruficauda* Bigot (1878); *tricolor* Philippi (1865); *venustus* Philippi (1865).

Palaearctic: *Scylaticus degener* Schiner (1868); *degener lutescens* Engel (1930); *miniatus* Becker (1915); *semizonatus* Becker (1906).

Ethiopian: *Scylaticus albipilus* Becker (1923); *albofasciatus* Engel (1932); *argyropus* Engel (1932); *barkeri* Bromley (1947); *costalis* Wiedemann (1819) [=*laticinctus* Loew (1858)]; *engeli* Bromley (1947); *exquisitus* Engel (1932); *leoninus* Engel (1932); *marginatus* Engel (1932); *pantherinus* Bigot (1878); *punctatus* Engel (1932); *quadrifasciatus* Engel and Cuthbertson (1934); *rufescens* Ricardo (1900); *varipennis* Ricardo (1925); *zonatus* Loew (1858).

Oriental: *Scylaticus indicus* Bromley (1938).

Country unknown: *Scylaticus histrio* Wiedemann (1828); *nomada* Wiedemann (1828).

Pycnomerinx, new genus

Type of genus: *Pycnomerinx annulatus*, new species.

Related to *Scylaticus* Loew from which it is separated by the rather long though slender microsegment attached to the long, slender, third antennal segment, which third segment is much shorter than in *Scylaticus* and more slender; also by the dense and quite long and extensive mystax of the facial gibbosity and by the unusually long, large, swollen palpus. Second segment of the palpus densely covered below with long, coarse, bristly pile. First segment of all of the tarsi quite short, especially on the first four legs. Length 17 mm., including antenna.

Head, lateral aspect: Face moderately extensive and gently rounded on the lower three-fifths, the upper face barely extended beyond the eye profile, the cheeks short and bare, the subepistomal area oblique, with a conspicuous, medial ridge or carina. Occiput comparatively tumid and conspicuous from the lateral aspect and densely covered with coarse, rather long, erect pile changing above the middle to equally dense, though slender bristles extending all the way up behind the vertex. At the bottom of the eye the occipital pile is a little more fine. Proboscis moderately robust, narrowed at the apex and on the outer fifth, and with the base rather strongly swollen ventrally. There is also a conspicuous, high, arched, dorsal carina along the middle. Palpus remarkably large and elongate, especially the second segment; the basal segment is short and more or less fused. Whole ventral and lateral margin of the long, stout, second segment covered with numerous, long, coarse hairs. Antenna elongate and slender, slightly longer than the upper half of the head, the slender first segment is 1½ times as long as the second segment and bears rather dense, long, coarse pile above, below, and laterally. The second segment is a little more than twice as long as its apical width, narrowed toward the base and has 1 long stout and 1 somewhat shorter ventral bristle near the apex and a likewise disproportionate pair of only slightly shorter bristles dorsally. Third segment nowhere wider than the second. It is 1½ times as long as the combined length of the first two segments, slightly narrowed at the immediate base and apex and bears a downwardly directed, slender microsegment with blunt apex and minute bristle.

Head, anterior aspect: Below the antenna the face is about a sixth the head width and moderately widened below. Front slightly wider than the upper face, the vertex but little excavated, the ocellar tubercle large and low with 4 pairs of slender, only moderately long, yellow bristles.

Thorax: Whole mesonotum densely long, more or less erect, bristly pilose, the pile undifferentiated, except behind the oblique, posterior suture. The posterodorsal central area bears 4 or 5 moderately stout, long bristles, together with additional, less stout bristles. Notopleuron with 2, supraalar region with 8 or 10, and the postalar callosity with 6 to 8 long, quite strong, reddish bristles. Scutellum large, flat, pollinose with no basal depression; the disc with some long, coarse pile on the outer half and the whole margin with a wide band of numerous, quite long, slender bristles and bristly hairs. Dorsal margin of the mesopleuron narrowly bordered with dense, long pile. Humerus with dense, coarse, rather long pile. Metanotal callosity pollinose only. Metapleuron with a large, oval or subcircular patch of long, slender, bristly hairs. Whole of the propleuron both above and laterally with exceptionally numerous, long, erect, coarse hairs. Prosternum dissociated. Hind coxa with a prominent, anterior, bristly ledge.

Legs: All the femora are quite stout but not otherwise swollen. They are relatively short with the hind femur a little longer than the middle femur and all the femora are densely covered with coarse, appressed, pale, bristly pile, which becomes a little longer below. Hind femur with a ventrolateral fringe of moderately long, slender, bristly hairs in 2 or 3 rows of 12 or 15 elements each. Among these and near the apex are 2 or 3 slender bristles. All the tibiae are quite stout and robust, especially the hind tibia, which is nearly as long as the femur and has 4 moderately long, stout, brownish yellow, dorsolateral bristles; 4 shorter, ventrolateral bristles; and 7 longer, dorsomedial bristles. Middle tibia with a double, dorsal row, each row containing 6 or 7 short, yellow bristles, and 5 slightly longer, ventrolateral bristles. Pile of all the tibiae rather dense and shaggy, coarse, subappressed, and a little longer than that on the femora. The tarsal segments are remarkably shortened, the anterior tarsus and middle basitarsus, as well as their ultimate segments, are each barely or scarcely longer than wide and the intervening segments are considerably shorter than wide. Hind basitarsus quite stout and robust and nearly or quite as long as the next three segments. Claws stout, sharp, pulvilli long and wide, the empodium stout at the base.

Wings: The wings are comparatively long and slender, the marginal and submarginal cells equally widely open, the posterior cells all widely open, the anal cell widely open. Alula large, ambient vein complete, the third vein forks beyond the end of the discal cell. Posterior crossvein reduced, the anterior crossvein is a little oblique, and enters the discal cell a little before the middle. Postmarginal fringe in two diverging rows.

Abdomen: The abdomen is comparatively robust, and the first three tergites are as wide as the mesonotum, and from this point slightly narrowed. All the tergites strongly convex, the posterior part of the abdomen almost cylindrical and the rather long, eighth tergite slanted obliquely downward. Pile of abdomen rather dense, coarse, erect and bristly, becoming progressively longer toward the base of the abdomen where is forms long tufts on the sides of the first three tergites, somewhat shorter on the next two; on the last three it is curiously directed forward, regularly spaced, coarse and rather setate. Sides of first tergite with 7 long, curved bristles of moderate stoutness. Sternites with long, abundant, coarse, erect pile but the seventh and eighth sternites with the forward directed or erect setate pile. Last sternite forms an unusually long, troughlike, apically rounded scoop which extends well beyond the ninth tergite. The acanthophorites bear 6 pairs of stout, blunt, black spines. Postmetacoxal area membranous.

Distribution: Ethiopian: *Pycnomerinx annulatus*, new species. From Rhodesia.

Pycnomerinx annulatus, new species

Length 17 mm. including antenna.

Female. Head: The head is black; pollen of upper vertex and front pale brownish or yellowish grey; on the lower occiput the pollen is greyish white. Face with dense, greyish white, coarse micropubescence, which along the eye margins on the upper half tends to leave little, narrow, linear, bare stripes. Cheeks shining black and bare, all pile and bristles of head very pale brownish yellow, almost whitish in color. The terminal bristles of the second antennal segment are slightly darker in color and are almost reddish yellow. Antenna black with the extreme base of the third segment dark reddish brown.

Thorax: Mesonotum black with a rather dense coating of pale brownish yellow pollen. The humerus is large and light reddish brown in color and this color extends medially in for a short distance along the posterior edge of the pronotum. There is a wide band of similar, light reddish brown also covered by pale pollen which begins at the posterior suture and extends above the wing to include the whole of the postalar callosity, the extreme lateral base of the scutellum only, and which meets narrowly in front of the scutellum on the posterior part of the mesonotum. The anterior and posterior basalare, and a spot on the pteropleuron immediately beneath the wing, a small diffuse spot on the metanotum immediately beneath the basolateral angle of the scutellum also reddish brown. Mesopleuron and whole of the humerus with rather dense, long, coarse, bristly, yellow pile which has a reddish tint to it and this pile is nearly erect, and on the humerus is quite erect. Bristles of mesonotum reddish golden in color. Anterior basalare densely covered with long, coarse, pale pile. Posterior basalare with short micropubescence only. Scutellum black, thinly dusted with very minute micropubescence, the discal and marginal bristles and pile entirely light yellow. Pleuron black with thin brownish yellow micropubescence and pollen. There is a small, reddish spot on the upper part of the hypopleuron and the metapleuron is narrowly bordered with reddish dorsally.

Legs: The legs are shining dark sepia; the tibiae are very dark reddish sepia with the anterior half of these tibia lighter reddish in color, and the dorsal half of the hind tibia also lighter red. All tarsi rather light reddish brown, except the apical half of the last segment which is blackish. Bristles and pile everywhere pale brownish yellow to brownish white in color. Claws black with the extreme base reddish brown.

Wings: The wings are pale brownish hyaline, the villi reddish brown. Subcosta and radial sector more yellowish, the other veins brown. Halteres light orange brown throughout.

Abdomen: The abdomen is black, dully shining. All of the tergites, except the last two, with conspicuous, wide, posterior margins of pale brownish yellow which are overlaid by dense, pale yellow pollen. While these bands are not sharply delimited they are nevertheless clear and distinct. Pile of the abdomen quite pale yellowish to whitish in color. The last two tergites are quite black and somewhat more shining. Last sternite black, except that the apical, extensive, scooplike portion is translucent brown. Spines of acanthophorites black. Dorsal bristles of the proctiger brownish black. Bristly setae on the whole of the last sternite are blackish.

Type: Female, Matopos, South Africa, March 1937. Type in the Rhodesian National Museum.

Genus *Spanurus* Loew

Figures 49, 492, 1016, 1027, 1872

Spanurus Loew, Öfvers. Svenska Vet.-Akad. Förhandl., p. 350, 1858. Type of genus: *Spanurus pulverulentus* Loew, 1858, by monotypy.

Small or medium size flies, distinguished by the rather long antenna; the third segment is long, laterally compressed and bears an apical microsegment. The head is long with thick, tumid occiput and uniformly short, densely, bristly pilose face. The thorax and abdomen are densely, long pilose. These flies are perhaps related to *Scylaticus* Loew. The vertex is almost entirely unexcavated, a character shared by *Ancylorrhynchus* Latreille; however, they cannot be closely related to that genus because *Ancylorrhynchus* has a radically different type of proboscis. Length 8 to 11 mm.

Head, lateral aspect: The face is moderately developed and more or less of equal length throughout; it is very slightly more prominent below due to the recession of the eye and not quite plane in profile. The eye is unusually long, strongly convex anteriorly and only somewhat less so posteriorly. The occiput is unusually thick and prominent laterally as well as medially; the margins however are strongly convex and curved down to the eye. Pile of the occiput dense but rather short ventrally and for the most part set some distance from the eye margin; the pile becomes a little more stiff and bristly in character near the middle and on the upper third a little longer; all these bristles remain comparatively weak and slender, and are situated in a wide, submarginal band. All pile and bristles in the type of genus and in other species known to me are entirely pale yellowish. The proboscis is short, subcylindrical but from dorsal aspect rather strongly tapered, widest at the base. There is a low, inconspicuous, medial ridge across the middle arising at the basal third; the apex is bluntly rounded with abundant, fine, short hair distally and ventrally. On the ventral surface the pile is only found near the middle, where on either side are 2 or 3 long, slender bristles. Proboscis is directed obliquely forward, slightly downward and distinctly extended beyond the face but shorter than the head. Palpus clearly of two segments of nearly equal length. The first segment is excavated and bears numerous, long, stiff hairs ventrally; the second segment is attenuate both towards base and apex, and with a few long, lateral, bristly hairs attached to the middle; second segment apparently microporate.

The antenna is attached at the upper sixth of the head, moderately long and approximately of the same length as the head. The first two segments are comparatively short, the first segment 1½ times as long as the second. The third segment is from 1½ to 2 times the combined length of the first two segments, and is wide, rather strongly compressed laterally, widest through the middle, slightly tapered towards the base and apex and bearing apically a more narrow, short, attenuate microsegment with apical spine. The first segment is swollen ventroapically and bears 5 to 6 stout, long bristles, some long, dorsal setae, together with some shorter, bristly, ventrolateral pile; second segment with only short, lateral and dorsal setae.

Head, anterior aspect: Face below antenna is one-third the head width and slightly divergent below. Subepistomal area comparatively small, oblique, concave and bare. The face is quite densely covered with long, slender bristles and bristly pile, but the lateral margins are narrowly apilose. These face bristles are a little shorter beneath the antenna; most of them are slightly curved and extend obliquely downward. The front and vertex are no wider than the lower face. Front with numerous, long, bristly hairs along the eye margins and a few other subappressed, shorter hairs on the lateral third. The front is short, nearly horizontal, pollinose and slightly depressed. Vertex almost completely without excavation, the ocellarium is low, wide, with large ocelli and numerous bristly hairs across the middle. It extends a little above the eyes in profile. Anterior eye facets only a little enlarged.

Thorax: The thorax is minutely appressed pubescent on the pleuron and laterally on the mesonotum; remainder of the mesonotum is subpollinose and opaque. Pile of the mesonotum unusually abundant, long, stiff and erect with similar long pile on the humerus and with a laterally directed extensive tuft behind the humerus. The following complement of bristles is present: 3 notopleural, 3 or 4 supraalar, 3 postalar and a wide band of slender bristles in several rows on the scutellar margin. Disc of scutellum with equally long, bristly pile. Propleuron with abundant, long, slender, bristly pile laterally and upon the anterior collar where weak bristles are also present. The anterior and upper middle sternopleuron both have a tuft of long, stiff hairs. Upper and posterior border of the mesopleuron with numerous, long, stiff, bristly hairs. Pteropleuron and hypopleuron apilose. Upper pteropleuron sometimes with 3 or 4 slender bristles. Metapleuron with a vertical band of numerous, long, slender bristles and bristly hairs or with a single row containing 10 elements. Lateral slopes of the metanotum micropubescent only. Lateral metasternum with a few long hairs at its posterior border; ventral metasternum with numerous, long hairs, chitinized and separated posteriorly by membrane. Postmetacoxal area membranous; tegula with 3 or 4 long setae; anterior basalare with a conspicuous tuft of 12 or more long, bristly hairs.

Legs: All the femora are stout, at most only slightly swollen; the anterior femur is shorter or proportionately wider, the hind femur slightly narrowed towards the base; all femora densely long, appressed setate anteriorly and dorsally and with somewhat less abundant, short, subappressed pile ventrally. This pile on the first four femora tends to become longer on the basal half. Tibia also densely appressed setate; medial surface of the hind tibia and anterior tibia with a brush of setae. The following complement of moderately long, strong bristles present: on the hind femur 7 ventrolateral with 4 shorter bristles at the base; 5 lateral, 2 subapical dorsolateral, 1 similar dorsomedial bristle; the apex has on the upper half a circlet of 8 weaker bristles; the ventral surface has 5 or 6 long, bristly hairs progressively lengthened towards the base and the basal ones doubled. Hind tibia with 4 dorsomedial, 5 dorsolateral, and 3 ventrolateral bristles and the apex with 8 bristles. Hind basitarsus stout, longer than the next three segments. Middle femur with 1 posterior subapical, 1 or 2 posterodorsal subapical bristles, and 5 or 6 ventral bristly hairs. Middle tibia with short bristles which are weak with 4 anterodorsal, 5 posterodorsal, 7 posterior, and 3 or 4 posteroventral bristles. Anterior femur with 2 slender bristles posteriorly on the outer half; this tibia has the bristles reduced and weak. There are 4 or 5 short anterodorsal, 2 or 3 posterodorsal, and 6 posteroventral bristles. Apex without spine. All tarsi end in short, sharp claws, strongly bent at the apex, well developed pulvilli and comparatively short empodium, which is slightly compressed and a little thicker at the base.

Wings: The marginal cell, all of the posterior cells and anal cell open. The anal cell is narrow and the fourth posterior cell is narrowed to not more than one-third its maximal width. The anterior crossvein enters the discal cell at or just before the middle. The second basal cell ends in 3 veins, the middle one short. Alula no wider than the costal cell; ambient vein complete; wings hyaline, approximately as long as the abdomen.

Abdomen: The abdomen is not quite as wide at its base as the mesonotum, but with an appearance of robustness accentuated by long, dense pile. Abdomen somewhat cylindrical and with a tendency to be compressed laterally. Male with eight tergites, the eighth extremely short, one-sixth as long as the seventh and the seventh tergite at most two-thirds as long as the sixth. Female with eight tergites; the last two lack pollen or sometimes only the eighth lacks pollen. Eighth segment of the female quite short, one-fourth as long as the seventh, the seventh one-half as long as the sixth. The abdomen tends to be opaque and dark in color, probably from pollen, with in some species sharp, posterior bands of pale colored pollen. Bristles absent or the sides of the first tergite may have 10 or 12 slender, bristly hairs. Pile long, bushy and rather dense in females, becoming shorter to the end of the fifth tergite and very short beyond. The long pile is continued in the male on to the last tergite. First sternite without pile. Male terminalia short, rotate one-fourth to the right; epandrium short, with a deep, very broad sulcus reaching virtually to the base, so that laterally on each side the epandrium is produced into moderately large, narrowed obtuse lobes. Hypandrium very short and undivided. Gonopod basally enlarged, convex and swollen, with sharply pointed apical process. Female terminalia quite short and with a row of stout spines on each side, which are rather deeply recessed in the eighth tergite. The ventral plate is compressed into a triangular, deep, scooplike process.

Distribution: Ethiopian: *Spanurus compressus* Karsch (1886); *pallidus* Ricardo (1925); *pulverulentus* Loew (1858); *tellinii* Bezzi (1906).

Genus *Bathypogon* Loew

FIGURES 111, 167, 462, 511, 1017, 1026, 1703, 1903, 2026

Bathypogon Loew, Bemerkungen über die Familie Asiliden, p. 13, 1851. Type of genus: *Dasypogon asiliformis* Loew, 1851, by monotypy.

Bathypogon has one subgenus, *Creolestes*, new subgenus.

Small to rather large flies, characterized by the prominent bristles, unspined protibial apex, the numerous facial bristles, the generally shortly produced face, but still more by the rather short wing and its characteristic venation. The anterior branch of the third vein arises abruptly from the straight base of the third vein and ends close to the second vein and far from the wing apex; the first submarginal cell is narrowed on the margin. Also the fourth posterior cell is closed with a long stalk and usually but not always the end vein of this cell and the lower end vein of the discal cell are nearly or quite aligned. Length occasionally as little as 10 mm. but more often 15 mm. and rarely as much as 30 mm.

Head, lateral aspect: The head is of medium length, the face usually a little produced and gently gibbous over the middle. The length of the area beneath the antenna is very short. The eye is generally greatly narrowed and pointed below, due to both anterior and posterior recession. Occiput moderately developed, except at the immediate vertex, its ventral pile is dense, long and quite fine; bristles begin at the lower third, and are numerous and below the middle occupy two or three rows. At the middle and above they form a very regular, single row and in addition there is a prominent cluster on each side behind the vertex having up to 10 bristles. Proboscis robust, of moderate length, on the outer fourth it is tapered above and below to a blunt point. It has a long carina reaching nearly to the apex and much long, coarse pile, ventrally on the basal half. Palpus of two segments, the first segment excavated, the second cylindrical with slender, apical bristly hairs and considerable ventral pile. The antenna is attached a little above the middle of the head, scarcely as long as the total head length but a little longer than the eye. The first segment is twice as long as the second; second segment beadlike; first segment with numerous, long, coarse hairs or ventral bristles. The third segment is a little wider through the middle than the second segment or than its base or apex, and sometimes it may be considerably dilated beyond the middle. This segment bears 2 microsegments, the first quite short, the second several times as long with a spine at apex.

Head, anterior aspect: The head is not very wide, only a little wider than high; the face is about one-fifth the head width below the antenna and distinctly but moderately divergent below. The face is everywhere coarsely pubescent, usually without pile, but with a wide, medial triangle of numerous, exceptionally stout, long, pale or sometimes black bristles. The lower elements reach beyond the proboscis. In an occasional species the elements are distributed in the same way, but are so slender that they might be regarded as very coarse pile instead of bristles. Front slightly divergent, a little convergent at the vertex. The front is sunken, pollinose, with a submedial row of 4 or 5 bristles. Vertex moderately excavated with slanting sides, large ocellarium, with nearly vertical sides and 2 or 3 stout bristles between the ocelli; a like number of pairs behind the ocelli. Anterior ocellus enlarged. Eye margin along the vertex with 3 stout bristles. Subepistomal area moderately large, concave, pollinose, oblique. Anterior eye facets considerably enlarged.

Thorax: The thorax is pollinose with abundant, fine pile, much of it setate and widely distributed. Medial pile is present but not differentiated. Dorsocentral bristles are differentiated only posteriorly where they are from 3 to 5 in number and are long and stout. Humerus with scattered setae, the lateral complement all long and stout: 1 posthumeral, 2 or 3 notopleural, 1 or 2 supraalar, 2 postalar, and 2 pairs on the scutellum. Disc of scutellum flattened, pollinose, usually without pile, but sometimes with long, coarse or fine hair. Anterior collar generally with 7 or 8 pairs of long spikelike bristles; the lateral pronotum has only dense pile. Cervical sclerite and the posterior lateral propleuron with dense, fine pile, the anterior element with 3 stout bristles and much pile. Pleuron generally pollinose; metapleuron with 1 to 6 or more long, stout bristles, and much similar, long, bristly pile. All coxa laterally with long, stout bristles. Remainder of pleuron without pile, except a few short hairs sometimes on the lower sternopleuron. Lateral and ventral metasternum pilose; postmetacoxal area membranous.

Legs: The femora are rather short and stout, the anterior and middle pair distinctly swollen over the middle and towards the base; their pile is abundant, subappressed and setate. Bristles of both femora and tibiae are stout, long and prominent; hind femur with 4 lateral, a pair of dorsomedial bristles at apex; the middle femur has at the apex a pair of posterodorsal and 2 or 3 anterior bristles. Anterior femur with 1 bristle on either side near the apex and 1 posterior bristle at the outer third. The hind tibia has 3 prominent bristles in both the dorsomedial and dorsolateral rows, 4 ventrolateral and 1 medial bristle. Middle tibia with approximately the same number of bristles in like rows and with also 1 ventral bristle. Anterior tibia similar but with 5 bristles in the anterodorsal row and the posterodorsal row. Protibial apex without spine; the apical circlet of bristles in common with the other tibiae is exceptionally long and set a considerable distance from the apex. Tarsal bristles stout and long. Claws only moderately sharp, pulvilli long, empodium bladelike.

Wings: The wings are immaculate except for marginal and apical villi; marginal cell open though narrowly, submarginal cell also open narrowly, but a little more widely. The anterior branch of the third vein arises rectangularly; the posterior branch ends behind the wing apex. All posterior cells widely open except the fourth which is closed and stalked, the stalk usually long, its end vein usually aligned with the lower end vein of the discal cell, but sometimes makes a broad angle. Anal cell closed; alula large, protruded distally; ambient vein complete, but often weak and the wing margin frequently frayed.

Abdomen: The abdomen is stout at the base, distinctly tapered to the apex, long and extending beyond the wings; the pile is abundant, subappressed, coarsely setate, a little longer on the lateral margins. The first tergite has a long row of lateral bristles which may contain 12 to 14 or fewer. Males with seven tergites and a liplike trace of the eighth; eighth sternite short. Females with eight tergites, the eighth at least half as long as the seventh or longer. Male terminalia not rotate, the epandrium cleft into superior forceps. Gonopod large but generally shorter; it is extended inward medially toward the base; in the middle it is fused with the base of the more or less triangular hypandrium. Genital cavity exposed; both superior forceps and gonopod distally are apt to bear intricate, distinctive processes and teeth. Females with 6 or 7 pairs of spatulate spines on the acanthophorites.

Distribution: Neotropical: *Bathypogon cinereus* Bigot (1878); *claripennis* Schiner (1868); *hirtuosus* Schiner (1868); *parvus* Bigot (1878).

Australian: *Bathypogon asiliformis* Loew (1851); *aoris* Walker (1849); *boebius* Walker (1849); *brachypterus* Macquart (1838); *fulvus* Hull (1956); *griseus* Hull (1956); *hamaturus* Hull (1956); *maculipes* Bigot (1878); *magnus* Hull (1956); *mutilatus* Walker (1855); *nigrachaetus* Hull (1956); *nigrinus* Ricardo (1912); *pedanus* Walker (1849); *?plumbeus* Fabricius (1775); *posticus* Walker (1855); *robustus* Hull (1956); *rubellus* Hull (1956); *rubidapex* Hull (1956); *testaceovittatus* Macquart (1855); *tristis* White (1914); *uncinatus* Hull (1956).

Creolestes, new subgenus

FIGURES 512, 1019, 1028

Type of subgenus: *Bathypogon hirtuosus* Schiner, 1868.

Comparatively large flies with short head and distinguished by the lower facial protuberance, which bears numerous, long, slender bristles and bristly hairs. The occiput is without bristles but bears abundant, long pile. The antenna is suggestive of *Cyrtopogon* Loew in its appearance. The wing venation approaches *Bathypogon* Loew, but the second submarginal cell is much more narrow and the anal cell is open. These flies differ also in the absence of bristles on the occiput but the presence of very stout, long bristles beneath the second antennal segment. Length 18 to 22 mm.

Head, lateral aspect: The head is high and short. The face is quite short on the upper two-fifths but prominent and protuberant below. The occiput is prominent and well developed below becoming progressively reduced towards the vertex; it bears dense, conspicuous, long pile, the dorsal elements in the vertical region not much shorter and the more external hairs only stiffened; bristles are absent. The proboscis is stout, directed obliquely downward, projects considerably beyond the face and its thickness is reduced only quite near the apex. The apex is bluntly pointed and bears numerous, bristly hairs dorsally and again on the vertical margin but confined to the outer fourth. Palpus of two segments; the first segment is excavated, the second short, clavate, attenuate with apical pore, and both bear numerous, long, stiff hairs. The antenna is attached a little above the middle of the head, its length a little greater than the head length. The first two segments are of nearly equal length, the first more robust, with numerous, long, stiff hairs on all sides except medially, the second with 4 dorsal bristles and 3 still longer, more stout bristles below. Third segment elongate, a little narrowed basally, or subbasally, the apex obliquely truncate downward and carrying a short, robust, minute spine-tipped microsegment.

Head, anterior aspect: The face below antenna is almost one-fourth the head width, scarcely divergent below. The upper part is without pile; the gibbous or protuberant lower part bears very numerous, long, slender bristles or bristly hairs, with some equally long, more slender hairs. Front a little wider than upper face, the vertex again convergent. Sides of front with numerous, long, stiff hairs. Vertex rather strongly excavated, the sides of the ocellarium slanting, and the latter bears laterally 4 pairs of long, slender, black bristles, slightly curved backward and divergent. Anterior eye facets strongly enlarged.

Thorax: The mesonotum moderately convex and strongly abrupt in front, gently compressed between the humeri and with steeply sloping sides. The acrostical pile is long, slender, nearly erect, backwardly curved and bristly, forming a double row over most of the middle anterior mesonotum but widening into a broad, dense patch along the steep anterior portion of the mesonotum. Dorsocentral elements also are quite long and fine. All the pleural pile and much of the femoral and abdominal pile microscopically crinkled. All bristles of mesonotum black, extremely long, and very stout; they consist of 3 notopleural, 3 supraalar, 5 postalar and 7 pairs on the scutellum, the 2 more basal pairs weak. The postdorsocentral elements are exceptionally long and stout; there is a double row on each side containing 12 to 14 prescutellar bristles. Metanotal slopes pubescent only; metapleuron with a wide, middle vertical band of long, fine pile and 9 rather stout, brownish yellow bristles. Pronotum densely long, fine pilose; bristles absent. The propleuron, the anterior and posterior mesopleuron, upper sternopleuron, hypopleuron all with abundant, extremely delicate, quite long, erect pile. Hypopleuron with long pubescence.

Legs: The hind femur quite stout, slightly narrowed at apex and base and densely long, appressed pilose and with extremely long, stout, black bristles. The bristles consist of 5 lateral from the basal fourth to the apical fourth, the last element doubled, and with a shorter bristle beyond near the apex; also an irregular, partly doubled anteroventral row of 10, a pair at the extreme apex dorsally, the lateral one doubled, the medial one doubled or tripled, besides a pair at the subapex and 1 medioventrally at the apical fifth. The lateral and medial surfaces bear extremely long, fine hairs in rows at different levels which more or less radiate outwardly; these hairs are especially numerous medially, and on this surface some of the hairs are more than half as long as the length of the femur. Hind tibia similarly pilose and similarly beset with very long, stout, curved, oblique, black bristles which consist of: 4 dorsolateral, 5 ventrolateral, 4 true dorsal, and 2 appressed medial ones near the middle. Apex with especially long, stout bristles below. The middle femur bears 3 very long, stout bristles below. The middle femur bears 3 very long, stout bristles placed posteriorly and irregularly near the middle; 2 dorsal and 2 dorsoposteriorly at the apical fourth, together with an irregular patch of 7 anterior bristles centered around the middle of the femur. Middle tibia with 4 long, stout, posterior, 4 dorsal and 4 strongly oblique ventral, and 5 oblique anterior bristles.

Anterior femur with only a single posterior bristle beyond the middle but with extremely abundant, long, fine pile, especially below. Anterior tibia with a double dorsal row, each row with 8 elements and with a still longer double posterior row containing 4 posterior and 3 posteroventral bristles. The apex of the anterior tibia has 2 posterior, 2 dorsal, 1 anterior, 4 ventral bristles, all extremely long. The basitarsus is rather short, nearly as long as the next 2 segments and bears extremely long apical and posterobasal bristles. Anterior tibia without spine. Claws exceptionally long, stout, sharp; pulvilli thin, with rounded apex; empodium long, bladelike, swollen at the base, as long as the pulvilli.

Wings: The marginal cell open but narrowed; fourth posterior cell closed with a long stalk; the end vein of the fourth posterior cell and lower end vein of discal cell nearly aligned, as in *Bathypogon* Loew. Anal cell open. Alula present, ambient vein complete.

Abdomen: The abdomen is subcylindrical, slightly tapering, the sides of the second tergite are only slightly protruding and bear dense, long, fine pile and 2 stout, long bristles. Sides of the remaining tergites only with long, fine pile, growing shorter beyond the third tergite. The first tergite is about one-third as long as second. In females 8 tergites are visible; the last is half as long as the seventh and is shining instead of pubescent. Female terminalia with 6 pairs of black spines. No males available.

Only one species and found in Chile.

Genus *Zabrotica* Hull

FIGURES 123, 464, 1723, 1769, 1919

Zabrotica Hull, Proc. Ent. Soc. Washington, vol. 60, p. 253, 1958. Type of genus: *Zabrotica clarkei* Hull, 1958, by original designation.

Comparatively small flies, which are sparsely pilose, strongly pollinose and dark in color. The face is moderately protuberant and convex with many long bristles situated down the middle. The acrostical and dorsocentral bristles of the mesonotum are especially large. Abdomen cylindroid and slightly tapered. Related to *Hypenetes* Loew, which it suggests in appearance and distinguished by the third antennal segment, which is swollen from the base to the middle and only slightly narrowed apically. Length 12 mm.

Head, lateral aspect: The head is comparatively long. Face moderately protuberant and convex but the protuberance ends a short distance below the antenna. The eye is only slightly recessive anteroventrally, oval on the anterior half and not flattened in the middle. The occiput is prominent in the middle and slightly more prominent below, obliterated only near the vertex. Pile of occiput scanty and stiff, bristly in the middle, longer and fine and crinkled below but never especially dense. The upper occiput bears 10 to 12 pairs of rather short, slightly curved, stout bristles, the dorsal elements pale. The proboscis is short, directed obliquely forward and a little downward, laterally compressed with prominent, thinned medial ridge; the base is not swollen, the apex gently tapers to a blunt point with scanty, fine pile at the apex and with some long, fine hairs ventrally on the basal half and 2 or 3 hairs laterally. The palpus is clearly of two segments; first segment excavated, second segment porate. The palpus is of average size and it bears stiff, bristly pile of no great length. The antenna is attached at a level corresponding to two-sevenths of the head height from the vertex. The antenna is of moderate length and thickness: the first segment barely longer than the second. The third segment is slightly longer than the first two combined, a little wider beyond the middle, slightly tapered towards the apex and bears two microsegments; the first very short and not readily distinguished, the second three times as long, with a minute, sharp, basally thickened spine. First segment with 8 to 10 long, stiff hairs ventrally, and 7 laterally and dorsally. Second segment with 3 unusually long, quite stout, ventral, subapical bristles. Third segment with 5 dorsal setae.

Head, anterior aspect: The face below the antenna is two-sevenths of the head width and slightly divergent below. The subepistomal area is short, oblique with the palpus filling the greater part of this space. The face cover consists of dense, pale, appressed micropubescence. There is no simple pile but the middle of the face bears a vertical band of numerous, long, stout, anteriorly directed bristles; the bristles on each side of this medial row extend slightly outward laterally, the medial elements pale, the lateral elements black.

Subepistomal margin without bristles. The front is very slightly wider than the upper face, each side bearing 7 or 8 bristly hairs. The vertex is quite shallowly excavated. The ocellar protuberance unusually low, the ocelli of moderate size, the protuberance bears 2 pairs of quite long, moderately stout, divergent bristles and a single pair of shorter hairs laterally. Central eye facets very slightly enlarged.

Thorax: The thorax is densely micropubescent, including the pleuron. The mesonotum is comparatively high and anteriorly rounded and gently arched behind. The mesonotum bears almost no pile but has a conspicuous complement of numerous, unusually long bristles. There is a double acrostical row of long, slender, backwardly turned bristles confined to the anterior third but extending anteriorly to the bottom of the mesonotum. Beginning opposite the humerus there is a double row of long, dorsocentral elements with an inner row distinctly longer and stouter. The dorsocentral bristles continue to within a short distance of the scutellum. Scutellum convex and pubescent. Humerus with a few, fine hairs and 3 stout, pale bristles. The remaining long, stout, lateral bristles consist of: 3 notopleural, 2 postsupraalar, 4 postalar and 2 pairs on the scutellar margin. The propleuron bears pile and the upper posterior portion has a few weak bristles, the pronotum has 8 to 10 pairs of stout, yellow bristles. The mesopleuron has 2 fine hairs posteriorly. Pteropleuron without pile; hypopleuron with 5 extremely long, delicate hairs; the metapleuron bears a vertical band of 5 rather long, moderately stout, pale bristles and a few additional hairs. Metanotal slopes bullose and micropubescent only. Hypopleural patch spot scarcely differentiated. Slopes of metasternum with 10 or more fine hairs. Metasternum with 20 to 30 long, fine hairs. Postmetacoxal area membranous; tegula with 3 or 4 short, bristly hairs.

Legs: The femora are stout without being especially thickened; the first 2 pairs are somewhat more thickened than the hind pair. All pile and bristles pale. The hind femur bears abundant, fine, appressed, setate pile which becomes more scanty ventrally and there is no ventral fringe. This femur shows 2 closely adjacent medial and apical bristles, 5 lateral, and 3 ventromedial bristles restricted to the middle, all of medium length and moderately stout. Trochanter with 3 bristles. Coxa with bristles only anteriorly. The hind tibia bears scanty, appressed pile, a dense brush of appressed setae medially extending to the middle and the following bristles: 1 medial situated in the middle, 4 dorsal, 3 lateral, 4 ventrolateral bristles. The apex bears 2 medial, 1 dorsal, 3 lateral, and 4 ventral bristles. Hind basitarsus short and stout. The middle femur bears 2 anterior bristles, 1 near base and 1 near apex; this tibia bears 3 anteroventral, 6 anterodorsal, 5 posterodorsal, 5 posteroventral, 3 ventral bristles. These bristles are oblique, rather stout and of moderate length. The apex bears 1 anterior, 2 dorsal, 1 posterior, and 4 ventral bristles. Anterior femur with 1 weak posterior element near the apex. The anterior tibia has an anterior brush of setate pile; there are 6 short, anterodorsal bristles, 4 longer posterodorsal, 5 posterior and 4 posteroventral bristles which are considerably longer than the remainder. Apical complement similar to midtibia and without any spine. All tarsi bear long, well developed pulvilli; long, sharp, basally thickened empodium; and sharp claws.

Wings: The marginal cell is open, the fourth posterior cell is closed with a long stalk; the second basal cell is closed with 3 veins, the middle element at least half as long as the anterior element. The anterior branch of the third vein ends before the apex of the wing. Alula well developed; ambient vein complete.

Abdomen: The abdomen is cylindroid and slightly tapered, not quite as long as wings. The first tergite is not quite as wide as the mesonotum, only slightly ridged and widened laterally. In the female eight tergites are present but the eighth is only one-third as wide as the seventh. Pile of abdomen scanty, fine, erect and short, a little longer on the sides of the first three tergites. Bristles are restricted to the first tergite which bears 7 pairs of short, stiff, pale bristles. Sternites with long, fine pile beginning with the second. The female terminalia are quite short and recessive but this may represent an abnormal condition as only a single specimen is available for study. Several pairs of acanthophoritic spines are recessed but are visible. The ventral plate is strongly compressed laterally into a flattened, ventrally split, rounded, short, scooplike prolongation.

Distribution: Neotropical: *Zabrotica clarkei* Hull (1958).

Genus *Hypenetes* Loew

FIGURES 131, 463, 952, 961, 1018, 1025, 1932

Hypenetes Loew, Öfvers. Svenska Vet.-Akad. Förhandl., p. 349, 1858. Type of genus: *Hypenetes stigmatias* Loew, 1858, by monotypy.

Clavator Philippi, Verh. zool.-bot. Ges. Wien, vol. 15, p. 699, 1865. Type of genus: *Clavator punctipennis* Philippi, 1865, by present designation, the first of 5 species.

Hypenetes has 1 subgenus, *Tillobroma*, new subgenus.

Small to medium size flies with all of the posterior cells open, the anal cell open or narrowly closed, the scutellum with a long fringe of bristles, the abdomen tapered. The face is gibbous, produced and bears dense, long bristles. They are especially characterized by the third antennal segment being distally swollen and strongly attenuate at base with a rather long, conspicuous microsegment. Length 10 to 17 mm.

Head, lateral aspect: The face is conspicuously produced and convexly rounded from any aspect, becoming plane with the eye for a very short distance beneath the antenna. Eye of moderate length, strongly and gently recessive on the lower half posteriorly and slightly narrowed anteriorly on the lower half. The occiput has dense, long, fine pile ventrally, the dorsal pile is similar with bristles absent. The occiput is short dorsally becoming extensive below. The proboscis is quite short, stout, swollen towards the base, the apex bluntly pointed; it is also swollen basally in dorsal aspect; it bears a low, medial ridge and numerous, long, delicate, ventral hairs on the basal half. It is directly chiefly forward and only slightly oblique and does not extend beyond the face. Palpus minute, cylindrical, closely appressed against the medioventral aspect of the cheek and bearing numerous, long, bristly hairs ventrally and near the apex. First segment short, more or less fused to cheek; second segment longer and slender, without pore. The antenna is attached at or near the middle of the head, its length is moderate and quite slender; the first two segments are slender and the first is a little longer than the second. Third segment not quite twice as long as the first two combined; it is more narrow than the second segment, strongly constricted on the basal half of the segment and dilated distally to more than three times its basal width, then rather abruptly narrowed at the apex; it bears apically a stout microsegment, anterodorsally truncate and carries an apical central spine. First and second segments with numerous, long, fine, bristly hairs except medially.

Head, anterior aspect: The face below the antenna is about one-fourth the width of the head. Subepistomal area short, horizontal, concave and pubescent. Face densely micropubescent; almost entirely covered, except immediately beneath the antenna, with numerous, long, slender bristles. Across the epistoma and continued down the whole lateral margin there is a band of long, bristly hairs; upper face without bristles. Front large, long, wide, slightly raised laterally with 3 rows of long, slender, bristly hairs. Vertex but little excavated with gently sloping sides; a crease sets off the large, rather low ocellarium and continues shallowly down the front, dividing it into 3 parts. The ocellarium bears large ocelli, 3 pairs of long, slender, bristly hairs between the ocelli, 2 pairs between the posterior ocelli and 4 pairs behind. Anterior facets enlarged.

Thorax: The thorax is everywhere pollinose; the pile of the mesonotum is abundant, quite long, fine, bristly and erect with similar bristles medially but poorly differentiated. Dorsocentral bristles poorly differentiated anteriorly with 4 long, more stout elements in front of the suture and 5 pairs posteriorly. Humerus with long, bristly pile. The following complement of long, but slender bristles is present laterally: 3 notopleural, more or less transversely, 3 supraalar, a tuft of 8 postalar and along the scutellar margin 5 pairs with several additional submarginal pairs of bristles which are more slender. Scutellum thick, convex, though with a tendency to be flattened on the basal third, the whole micropubescent. Propleuron densely, long, fine pilose with similar, slightly bristly pile on the anterior collar; the dense, fine pile continued on the posterolateral pronotum; bristles absent. Mesopleuron with a tuft of long, bristly pile posterodorsally, anterior and middle sternopleuron with long, fine pile; pteropleuron and hypopleuron apilose. Metapleuron with a wide band of some 20 long, slender bristles. Lateral slopes of the metanotum micropubescent only; the lateral metasternum and the ventral metasternum with some long, fine pile; postmetacoxal area membranous; tegula with setae. Prosternum fully dissociated.

Legs: The femora are stout without being swollen and bear fine, scanty, short, appressed pile dorsally with numerous, long, fine hairs medially, laterally and ventrally and with a ventromedial fringe of still longer bristly hairs. Hind tibia with a fringe of long, fine, erect pile and appressed, dense setae only at the immediate apex. The following complement of bristles present: on the hind femur a stout, long, lateral bristle at the apical third; its tibia has long, bristly hairs medially on the basal half, 7 similar elements dorsomedially of which the last 2 stand out as slender bristles; also 8 dorsolateral bristles of which 2 near the middle and at the outer fourth are rather conspicuous bristles. Above them lies a fringe of 8 or more long, bristly hairs; ventrolaterally there are 2 stout bristles on the distal half with 2 similar ventromedial bristles equally long and stout; apex with 3 long, stout, ventral bristles and a similar medial bristle. Middle femur with a stout, anterior bristle at the apical third and dense, long, fine pile on all sides except dorsally. Middle tibia with 2 long, stout anterodorsal bristles, a long posterodorsal fringe and a double posteroventral fringe of bristly hairs. Ventrally there is 1 long distal and 1 long, stout posteroventral bristle. Anterior femur with only long, fine pile on all sides except anterodorsally; its tibia has 3 or 4 short bristles anterodorsally, 2 long, stout bristles posteriorly, with several rows of bristly hairs dorsally and posteriorly. This tibia is without spine. The tarsi end in sharp claws, long pulvilli and an especially long, strongly compressed empodium not swollen at the base.

Wings: The marginal cell is widely open, the fourth posterior cell slightly narrowed; the upper end vein of the discal cell is a little shorter than the lower vein and rectangular to the first posterior cell. Middle end vein of the second basal cell quite short; the anterior crossvein enters the discal cell at the middle. The anal cell is widely open, the alula is twice as wide as the costal cell; ambient vein complete.

Abdomen: The abdomen reaches to the end of the wing; it is cylindroid and tapered but broad at the base and nearly as wide as the mesonotum. The pile of the abdomen is abundant, short and fine, erect on the terminal segments, longer along the sides of the tergites; first tergite laterally with 4 pairs of long, slender bristles. Males with seven tergites, the seventh only half as long as the eighth and shorter laterally. There is a very narrow dorsal trace of the eighth tergite. Females with eight tergites, the eighth is as long as the seventh. Male terminalia fully rotate, large and conspicuous and obtuse and dominated by the epandrium. Epandrium cleft to the base, apposed except distally where it is narrowly divergent, enclosing the proctiger.

Gonopod small and short. Hypandrium broad and short with a bristly, curved, medial process, lobe or extension. Much of the cavity is open. Female terminalia with 4 pairs of long, slender, pointed but hollowed spines; accessory spines or bristles absent, but with considerable bristly hairs. The ventral plate extends beyond the eighth tergite, is triangular, compressed and split on the apical half.

Distribution: Neotropical: *Hypenetes asiliformis* Wulp (1882); *fulvicornis* Macquart (1846); *nigribarbis* Philippi (1865); *obtusus* Engel (1930); *punctipennis* Philippi (1865); *rubricornis* Philippi (1865); *rufescens* Philippi (1865); *tertialis* Bromley (1932).

Ethiopian: *Hypenetes grisescens* Engel (1929); *stigmatias* Loew (1858).

Tillobroma, new subgenus

Type of subgenus: *Clavator punctipennis* Philippi, 1865.

I distinguish the South American species of *Hypenetes* Loew from the African species of the same genus on the basis of their smaller size, and the short, fine, simple bristles or bristly hairs of the occiput; these are stout, conspicuous, and strongly proclinate in the African species. The proboscis is smaller and less robust, the occiput less tumid and swollen. Length 10 to 12 mm.

Genus *Neodioctria* Ricardo

FIGURES 129, 484, 1014, 1023, 1690, 1834, 1835, 1873, 1987, 2009

Neodioctria Ricardo, Ann. Mag. Nat. Hist., ser. 9, vol. 1, p. 58, 1918. Type of genus: *Neodioctria australis* Ricardo, 1918, by original designation.

Medium size, slender and elongate flies; the known species are brownish orange and black with brown tinged wings. Abdomen cylindroid with parallel sides. Bare, shining flies with small, scanty, scattered setae and few bristles. Face relatively short and greatly rounded with bristles and pile confined to 1 or 2 rows at the epistoma. Protibial apex without spur; prosternum dissociated; male epandrium not developed into forceps and these terminalia rotate one-fourth; females with acanthophorites and spines. This genus has one peculiarity which immediately distinguishes it in either sex from all Asilids except *Neocyrtopogon* Ricardo; the apex of the proboscis is bifid. It is not related to that genus which has a well developed protibial spine, whereas *Neodioctria* has none. Length 15 to 18 mm.

Head, lateral aspect: Face moderately produced beyond the eye, but nowhere prominent; it is gently convex from beneath the antenna to the lowest quarter, which is so slightly produced that there is a very slight concavity over this portion. Occiput moderately developed in profile, but sloping gradually down to the eye margin so that it is better developed sublaterally; both dorsally and ventrally it recedes to the eye margin. Pile of occiput below moderately abundant and coarse but not dense. Upper half of occiput with a few slender, somewhat proclinate bristles, and medial to the upper eye corners and somewhat deeply placed are 3 or 4 more stout, nearly straight, pale brown bristles. Proboscis comparatively short but extended as far forward as the ends of the lower mystax and either obliquely directed forward or nearly horizontal. It is robust in the middle and in profile only is narrowed basally. It is rather strongly tapered near the apex and more gently tapered from the middle to the apex. The bluntly rounded, narrowed apex is slightly turned downward and is nearly bare, having only a few, fine, very small, ventral hairs. Characteristically in dorsal aspect the narrowed apex is bifid or cleft; no keel present. Palpus of two segments, the second set at a strong angle, short, robust, with a few fine, stiff hairs. Basal segment excavated and short with some long, stiff pile.

The antenna is a little longer than the head, set at the upper fourth of the head and comparatively slender. The first and second segments are of nearly equal length. The third segment is about four times the length of the second segment, of the same width or barely wider and slightly narrowed on the apical third. It bears a small, short microsegment directed obliquely downward, dorsally the apex is rather widely and circularly open with minute, enclosed spine; the whole microsegment is somewhat cuplike. First segment of antenna with long setae above and below, second segment ventrally with 2 long, stout, subapical bristles.

Head, anterior aspect: The head is about 1½ times as wide as high. The face beneath the antenna is a little more than one-fourth the head width and slightly and gradually widened below. Face surface densely pale pubescent, without pile except for 2 or 3 fine, long hairs on each side near the middle of the lower third of the face. On the epistomal margin is a single, curved, transverse, scattered row of slender bristles. These are slightly curved, extended chiefly forward, and reach almost to the apex of the proboscis. Subepistomal area small but deeply concave and oblique. Front wider than the upper face and the vertex barely narrowed; it is slightly concave, dark brown pollinose with a wide band of scattered, stiff hairs along the eye margin. Vertex almost without excavation, the sides gently sloping, the ocellarium small and low but with steep sides and bearing a tuft of anteriorly appressed, short, weak bristles between the posterior ocelli and others behind. Anterior eye facets a little enlarged.

Thorax: The mesonotum is only moderately to slightly convex, beset throughout with short, scattered, stout, backwardly curved setae. Bristles of the mesonotum are only moderately long and stout, and consist of 2 notopleural, 1 supraalar, none on postalar callosity or scutellum. Humerus with 12 fine, stiff hairs on the anterior part only. Similar pile is continued laterally behind the humerus to the suture. Dorsal setae clearly differentiated into acrostical and dorsocentral rows, not lengthened posteriorly. Scutellum thick, a little convex with 8 setae on the disc, the posterior half strongly sloping and the margin micropubescent. Metanotum with pubescence only. Pleuron micropubescent except on the propleuron which has fine hairs and the pronotum which has a row of weak bristles. Metapleuron with a band of 12 fine, long hairs. Postmetacoxal area membranous, prosternum fully dissociated.

Legs: The legs are comparatively elongate, especially the hind pair; they are rather loosely covered with stout, appressed setae. Bristles are greatly reduced, short, very few on the femora, more abundant on the tibiae and more conspicuous on the hind pair. Hind femur slender but distinctly and gradually dilated apically. It bears 6 lateral bristles. On the distal part are 3 medial bristles, and matching the lower elements at the subapex are 1 dorsolateral and 1 dorsomedial bristle. All these distal bristles are longer and stouter. Hind tibia is about as long as femur, quite slender but strongly dilated near the apex. The somewhat longer bristles are quite stout; there are present 5 dorsolateral, the same number of dorsomedial, and also the same number of ventrolateral bristles. Along the middle there are 4 ventromedial bristles. Apex with 2 dorsal, 2 medial, and 6 ventral bristles. Hind basitarsus moderately long, at least as long as the next three segments, which are comparatively beadlike. Middle femur stout, with a short bristle near the apex in front and behind. The anterior femur has only the posterior bristle. Middle tibia with 3 anterodorsal, 3 basal posterodorsal, 5 posteroventral, and 2 long, stout, distal ventral bristles. Anterior tibia rather similar with 6 anterodorsal, 4 posterodorsal, 4 posteroventral and likewise 2 long, distoventral bristles. Apex without spine. Tarsus similar to the hind pair. Claws stout basally, sharp at the apex, curved at apex. Pulvilli well developed, empodium swollen basally.

Wings: The wings are uniformly tinged with brown, dark in the anterior marginal cells. Marginal cell widely open, the second vein slightly curved forward at apex. Anterior branch of the third vein gently sinuous and ending slightly above apex. First posterior cell open maximally. Fourth posterior cell somewhat narrowed. Anal cell widely open. Alula present but reduced. Posterior crossvein absent. Medial crossvein longer than the upper anterior intercalary vein. The anterior crossvein enters the discal cell beyond the middle. Ambient vein complete.

Abdomen: The abdomen is elongate and subcylindroid. The margins of the segments tend to be slightly rolled laterally and slightly flattened. Pile of abdomen consists of sparse, fine, suberect setae. First segment laterally with 2 short bristles and a few hairs. Near the base of the second segment is a distinct, shallow, transverse, concave depression. The third to fifth segments are almost equal in length, the sixth nearly as long. Males with eight segments, the eighth less than half as long as the seventh; the seventh is little more than half as long as the sixth. Females with eight segments, the eighth reduced to about half the length of the seventh. Male terminalia comparatively large, rotate one-fourth; the epandrium has a lateral, obtuse, knoblike process on each side with the proctiger between. Hypandrium broad and comparatively long. Gonopod prominent, laterally convex with a short process that curves inward. The cavity is open below. Females with acanthophorites and 5 pairs of somewhat shortened, bluntly rounded spines.

Distribution: Australian: *Neodioctria australis* Ricardo (1918).

Genus *Microstylum* Macquart

FIGURES 150, 475, 953, 962, 1779, 1786, 2023

Microstylum Macquart, Diptères exotiques, vol. 1, pt. 2, p. 26, 1838. Type of genus: *Dasypogon venosum* Wiedemann, 1821. Designated by Back, 1909, the first of 10 species.

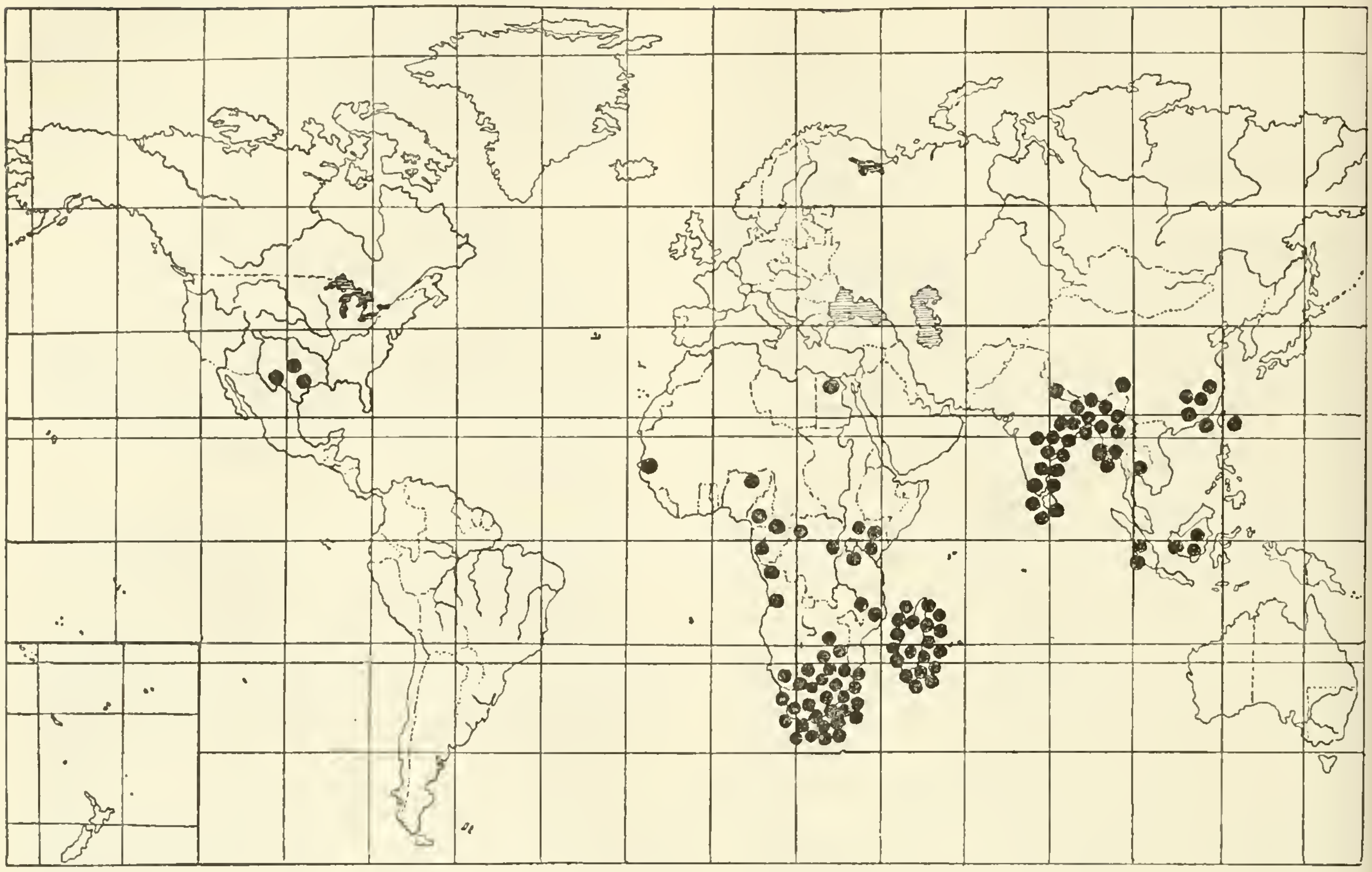
Megapollyon Walker, Insecta saundersiana, vol. 1, pt. 2, p. 85, 1851. Type of genus: *Dasypogon acutirostre* Loew, 1852. Designated by Coquillett, 1910, the first of 13 species.

Megapollion Bigot, Ann. Soc. Ent. France, ser. 3, vol. 5, p. 588, 1857, *lapsus*.

Microstylum has 2 subgenera, *Epiblepharis* Bezzi and *Eclipsis* Bezzi.

Large and sometimes giant flies characterized by the elongate, tapered, obtuse abdomen, and the long wing. The extremely robust species formerly included here are segregated apart on the presence of a mesotibial lobe or spur. Characteristically the species of *Microstylum* are short, pilose flies with rather slender femora and tibiae; the bristles are prominent, the thorax pollinose; the abdomen is rarely wholly pollinose, more commonly shining and sometimes with transverse pollinose fascia. All members of the *Microstylum* group have bristly or pilose metanotal callosity. The proboscis is unusually long, almost always strongly compressed laterally, sometimes approximately triangular, its apex rather sharply pointed and for a short distance depressed dorsoventrally. These flies are further characterized by a characteristic type of venation in which the base of the second posterior cell is strongly swollen, and in which the end vein of the discal cell and of the closed fourth posterior cell, while slightly undulate or sinuous, are in alignment and parallel the wing margin. Length 18 to 57 mm.

Head, lateral aspect: The face is moderately prominent, short beneath the antenna, gradually and slightly increasing in length; it is straight or gently convex, distinctly prominent above the epistomal margin, much of it due to the recession of the eye, but part of it due to a low, sometimes more or less abrupt, ventral extension of the face which may be marked off by a transverse groove. Where grooves are absent there are usually transverse ripples in the pubescence; there may be as many as three grooves. Again, the face may be nearly straight from antennal to epistomal margin. Eye of moderate length, equally developed above and below, or very slightly narrowed below and gently convex anteriorly. The occiput is rather short, a little better developed medially but obliterated near the vertex. Pile of occiput dense and rather long and covering the whole surface of the occiput except narrowly along the eye margins; the upper pile may be almost wholly replaced



Text-Figure 12.—Pattern of distribution of the genus *Microstylum* Macquart.

by bristles or may be abundant. The proboscis is unusually long, characteristically directed straight forward, almost always strongly compressed, but sharply pointed at the immediate apex which is actually depressed dorsoventrally; in one group this depression may be carried all the way to the base. Proboscis is rarely subtriangular or subcylindrical. The apex has a few fine hairs, the base usually with no pile and rarely with a few fine hairs ventrally in the middle; a ventral groove is present; a dorsal ridge may be absent, extensive, very low, or well developed at the base. Palpus large, conspicuous, clearly of two segments, the first is hemicylindrical and excavated and the second elongate, cylindrical, densely bristly except medially; the second segment is not porate; apical bristles are present.

Antenna attached just above the upper third of the head; the first two segments are relatively short and nearly equal in length, sometimes the second segment a little longer than the first. The third segment is slender, basally attenuate, begins to be moderately swollen or widened at the basal or middle third and its usual length is 1½ times the combined length of the first two segments; carries at its apex a short, usually truncate microsegment with, in turn, an apical spine. Pile of first segment composed of short, stiff, subappressed setae, second segment with similar, but longer, stiff setae or sometimes with 1 to 3 quite long, stout, ventrolateral bristles.

Head, anterior aspect: The face below antenna is about one-third the head width or less and divergent below. Subepistomal area large, deeply concave, bare and strongly oblique. Face micropubescent, apilose except on the subepistomal margin; lower third of face sometimes with pile. Mystax almost always confined to a single row of very stout, long, epistomal bristles, most generally 4 pairs, but often with 1 or 2 additional, shorter, more slender bristles present, and frequently with considerable, short, stiff, intermixed pile. Very rarely does the mystax extend over the entire lower third of the face. Front short, with lateral pile only, or more commonly with bristles which may be present in a single subocular row or a rather wide band of many such bristles. Vertex very little excavated, the ocellarium low but prominent and bearing between the posterior ocelli 1 or 2 pairs of short, stiff bristles and several pairs of additional bristles irregularly placed beyond the ocelli, or sometimes none in the intraocellar area. Again, the ocellarium may have a lateral row of

8 short, stiff bristles. Anterior eye facets rather strongly enlarged.

Thorax: The thorax is characteristically pollinose, the mesonotum long, gently convex. Pile of mesonotum short over the middle, fine, nearly erect and setate, and becoming slightly longer and coarse laterally. Acrostical bristles not differentiated; dorsocentral bristles a little longer and stouter in front of the scutellum. Humerus with fine, long, erect pile only, or with numerous, minute, very stout setae, or with as many as 6 stout, moderately long bristles. Lateral mesonotal bristles present as follows: 3 notopleural with sometimes additional bristles anterior to these or covering the entire presutural border, or with a single posthumeral bristle; supraalar usually with 1, sometimes 3 or 4, 2 in the type of genus; postalar with 3 or 4 and sometimes fewer; scutellar margin with 2 to 4 pairs. Disc of scutellum convex, pollinose, with sometimes a few, fine hairs. Anterior propleuron ventrally with thick tufts of long, fine pile in many species. The postpropleuron usually with 1 or 2 more stout, long bristles, or with only minute, short setae. Pronotum with fine or stiff pile or frequently with slender bristles. Posterior and anterior sternopleuron, pteropleuron, posterior hypopleuron, and the posterior mesopleuron with fine pile; mesopleuron sometimes with a few fine bristles. Pteropleuron sometimes with a rather long, stout bristle. Metapleuron with a narrow, vertical band of stout bristles which may be reduced to 4 or 5 or may consist of a wide patch of very long, slender bristles. Metanotal slopes characteristically with a conspicuous patch of stout or slender bristles and stiff pile, rarely reduced to as few as 2 or 3 elements. Lateral and ventral metasternum with fine pile; postmetacoxal area membranous; tegula with bristles; anterior basalare always with bristles and sometimes with a long stout bristle. Prosternum fully dissociated.

Legs: The legs are comparatively slender, the femur and tibia comparatively elongate; their pile is abundant but fine, short and appressed or if a little longer, still appressed. The following complement of bristles present in the type of genus: on the hind femur 5 short, lateral and 6 or 7 short medial, 1 near the apex; its tibia has a double dorsal row with 4 in each row but not aligned as pairs and with 6 ventrolateral, 5 ventromedial, the first 3 short. Middle femur with 5 short anterior, 2 posterior, 1 at the basal third, 1 near the apex, and the anteroventral surface with 7 very short bristles; middle tibia has 5 anterodorsal, 5 or 6 posterodorsal, 5 posteroventral and 5 anteroventral; all these bristles are short. Anterior femur with 3 short, basal anterior bristles, 4 or 5 quite short posterior, and a like number of ventral bristles confined to the basal half. The anterior tibial bristles are a little longer and consist of a double dorsal row containing 5 elements, 6 very short posterior, 6 somewhat longer posteroventral bristles. This tibia is without apical spine. All tarsi end in slender, sharp claws, well developed pulvilli and slender or slightly bladelike empodium.

Wings: The marginal cell is narrowly open, the second submarginal cell long and slender; the anterior branch of the third vein ends shortly before the wing apex; the posterior branch is arched backward strongly in most cases but ending only a moderate distance behind the wing apex. First posterior cell widely open, or narrowed to one-half the width of its distal section, or uncommonly, it is narrowly closed in the margin. Base of the second posterior cell swollen, sometimes very strongly swollen and bulging backward; the anterior crossvein is characteristically strongly oblique; the end vein of the discal cell and of the closed and long stalked fourth posterior cell in alignment and approximately parallel to the wing margin, but both veins undulate. Anal cell closed and stalked; alula moderately large; ambient vein complete.

Abdomen: The abdomen is long, slender, subcylindrical, a little tapered and a little longer usually than the wings. Pile of abdomen quite short and scanty, generally composed of fine, subappressed setae, which may be appressed on all segments or erect on the last two segments, especially in females. The abdomen is most commonly shining, rarely wholly pollinose, and frequently with conspicuous, pollinose fascia. Sides of first tergite with 3 to 7 stout bristles. In the males seven tergites, the seventh tergite is quite long. In the females eight tergites, the eighth tergite long or sometimes only one-third as long as the seventh. Male terminalia moderately large and fully rotate. The epandrium is not long, but large, either obtuse or acutely produced, fully cleft and divergent from the base with small, enclosed proctiger. The hypandrium is characteristic in this genus; it is thick, convex, posteriorly extended, more or less triangular and bears apically and medially a knifelike extension or plate. Gonopod either short or long and tucked in between the dorsal and ventral elements. Females with acanthophorites and 6 pairs of stout, long spines; ventral plate with the apex V-shaped, compressed and narrowly cleft.

Of this dominant and interesting genus the author had the privilege of studying more than 50 species in the collections of the British Museum (Natural History). The species are most numerous in South Africa and Madagascar, but are also numerous in southern Asia. From Australia 1 species has been questionably recorded; 1 is recorded from Mexico, but these flies are absent from South America, and the presence of 3 or 4 species in North America of this African and Asian genus is curious. None are recorded from Europe but 2 species are recorded from North Africa. They are powerful and aggressive flies. Bromley (1934) has commented interestingly on their habits.

Distribution: Nearctic: *Microstylum galactodes* Loew (1866); *morosum* Loew (1872); *pollens* Osten Sacken (1878).

Neotropical: *Microstylum fulvigaster* Bigot (1878).

Palaearctic: *Microstylum helenae* Bezzi (1915); *nigrisetosum* Efflatoun (1937); *sordidum* Walker (1854); *spectrum* Wiedemann (1828).

Ethiopian: *Microstylum acutirostre* Loew (1852); *afer* Wiedemann (1828); *appendiculatum* Macquart (1847); *aterrimum* Loew (1858); *atro-rubens* Timon-David (1952); *attenuatum* Ricardo (1925); *barbarossa* Wiedemann (1828); *bloessus* Walker (1849); *braunsi* Engel (1932); *bromleyi* Timon-David (1952); *capense* Fabricius (1805) [=*lacteipenne* Wiedemann (1828)]; *capucinum* Bigot (1878); *cinctum* Bromley (1930); *dispar* Loew (1858); *elegans* Ricardo (1900); *elongatum* Bigot (1878); *flavipenne* Macquart (1846); *fulvicaudatum* Bigot (1878); *fulvotibiale* Engel (1832); *gigas* Wiedemann (1821); *glabrum* Ricardo (1900); *gladiator* Bromley (1927); *griseum* Bromley (1927); *gulosum* Loew (1858); *hermanni* Ricardo (1925); *hirtipes* Ricardo (1925); *hobbyi* Bromley (1947); *ignobile* Loew (1857); *insigne* Bromley (1927); *lambertoni* Bromley (1930); *leucacanthum* Bezzi (1908); *lituratum* Loew (1863); *lucifer* Bromley (1930); *maculiventris* Bezzi (1908); *magnum* Bromley (1927); *miles* Karsch (1879); *mydas* Engel (1932); *nigrescens* Ricardo (1900); *nigribarbatum* Bigot (1878); *nigrimystaceum* Ricardo (1925); *nigritarse* Bromley (1927); *nigrostriatum* Hobby (1933); *nigrum* Bigot (1859); *parcum* Karsch (1887); *partitum* Walker (1851); *pauliani* Timon-David (1952); *pedunculata* Bezzi (1908); *pica* Macquart (1846); *pulchrum* Bromley (1927); *rabodae* Karsch (1884); *remicorne* Loew (1863); *rubigenis* Bromley (1927); *rubripes* Macquart (1838); *rufianale* Macquart (1849); *rufinervum* Macquart (1855); *rufum* Ricardo (1925); *sagitta* Bigot (1878); *saverrio* Walker (1849); *serranus* Walker (1849); *seguyi* Timon-David (1952); *sessile* Bezzi (1908); *simplicissimum* Loew (1852); *spinipes* Ricardo (1925); *spurinus* Walker (1849); *taeniatus* Wiedemann (1828); *tananarivensis* Bromley (1930); *umbrosum* Bromley (1930); *unicolor* Ricardo (1925); *ustulatum* Engel and Cuthbertson (1938); *validum* Loew (1858); *varipennatum* Bigot (1878); *venosum* Wiedemann (1821); *vespertilio* Engel (1932); *villosum* Bigot (1878).

Oriental: *Microstylum albolimbatum* Wulp (1899) [=*albolineatum* Wulp (1899)]; *amoyense* Bigot (1878); *apicale* Wiedemann (1821); *apiforme* Walker (1851); *balbillus* Walker (1849); *basalis* Brunetti (1928); *basirufum* Bigot (1878); *bicolor* Macquart (1849); *brevipennatum* Bigot (1878); *brunnipenne* Macquart (1849) [=*brevipenne* Wulp (1896), *lapsus*]; *dux* Wiedemann (1828) [=*shalumus* Walker (1849), *sinense* Macquart (1838)]; *erythropygum* Bigot (1878); *eximium* Bigot (1878); *flaviventre* Macquart (1849); *fulviventre* Wulp (1898); *haemorrhoidale* Bigot (1878); *imbutum* Walker (1851); *incomptum* Walker (1857); *indutum* Rondani (1875); *indutum nigricorne* Enderlein (1914); *libo* Walker (1849); *melanomystax* Enderlein (1914); *nigricauda* Wiedemann (1824); *nigrinum* Enderlein (1914) [=*nigrum* Bigot (1878) not Bigot (1859)]; *nitidiventris* Bigot (1878); *otacilius* Walker (1849); *polygnotus* Walker (1849); *proclive* Walker (1860); *rhypae* Walker (1849); *rufoabdominalis* Brunetti (1928); *strigatum* Enderlein (1914); *sumatranum* Enderlein (1914); *sura* Walker (1849); *trimelas* Walker (1851); *vestitum* Rondani (1875); *vica* Walker (1849) [=*spinitarse* Macquart (1849); *whitei* Brunetti (1928).

Australian: *Microstylum testaceum* Macquart (1846).

Oceania: *Microstylum dimorphum* Matsumura (1916); *scython* Walker (1849).

Country unknown: *Microstylum albimystaceum* Macquart (1855); *difficile* Wiedemann (1828); *fenestratum* Wiedemann (1828); *fuscipenne* Macquart (1838); *lugubris* Wiedemann (1828); *rufiventre* Macquart (1838).

Subgenus *Epiblepharis* Bezzi

FIGURES 490, 949, 958, 1753, 1860

Epiblepharis Bezzi, Ann. Soc. Ent. Belgique, vol. 52, p. 375, 1908. Type of subgenus: *Epiblepharis pedunculata* Bezzi, 1908, by monotypy.

Bezzi based the separation of *Epiblepharis* from *Microstylum* Macquart on the presence of a number of setae dorsally upon the third antennal segment and the short petiole at the base of the second posterior cell. Apart from this, the type which I have examined is in every respect a typical species of *Microstylum.* In species of *Microstylum* the base of the second posterior cell varies from short petiolate to no petiole and barely connected, to more commonly those species in which the upper section of the intercalary vein is of varying length between the posterior (medial) crossvein and the main part of the fourth vein. The abundant setae on the third antennal segment of *Epiblepharis* may form a better basis of separation. Length 25 mm.

Head, lateral aspect: The length of head is moderate, rather flattened anteriorly; the anterior eye facets are enlarged. The face is short. The occiput bears a row of stout, black bristles which begin near the bottom and become longer and stouter at the top. The proboscis is quite long, directed forward, anteriorly attenuate, and strongly compressed laterally. Palpus cylindrical, elongate, black, apparently consisting of one segment.

Head, anterior aspect: The face is pollinose with a few delicate hairs below and a mystax composed of 8 quite strong, stout, downwardly curved, black bristles. The face is one-fourth of the head width with parallel sides; the front is slightly wider, the vertex scarcely excavated; the ocellar protuberance is extremely low and bears scattered long hairs. Sides of front with 7 or 8 long, weak, black bristles.

Thorax: The mesonotum abrupt anteriorly, but only slightly convex with scattered pile across the entire dorsum which is also reddish pollinose. Humerus with 2 or 3 black bristles. Notopleuron with 4 especially long, stout, black bristles; supraalar with 1 long black bristle. Postalar with 2, scutellar margin with 1 pair of bristles. The prescutellar area has 4 bristles in 2 rows. Pleuron pollinose; mesopleuron with a few, fine, long hairs posteriorly and no bristles. Pteropleuron with a single long, stout, dorsal, black bristle. Hypopleuron without pile, metapleuron convex with a narrow band of moderately long, black bristles, some 12 altogether. Slopes of the metanotum with 8 or 9 stout, black bristles.

Legs: The hind femur is of moderate thickness, rather elongate with dense, subappressed, stiff, black pile and with a row of 7 stout, moderately long, black bristles along the lateral surface but no dorsal bristles at the apex. Hind tibia elongate, slender, with 5 stout, short, black, lateral bristles, 5 dorsal, 5 ventrolateral, and in addition 4 ventromedial bristles. Apex with spinous bristles as follows: 2 lateral, 2 dorsal, 5 ventral, and 2 medial bristles. Middle femur with a row of 4 anterior bristles; its tibia with 4 anteroventral and 5 anterodorsal, 4 dorsal, 5 posterodorsal, 5 posteroventral bristles. Apex with 2 dorsal, 2 anterior, 2 posterior, and 1 ventral bristle. Anterior femora with 2 weak, black, anterior bristles near the middle; its tibia has a series of short, spinelike bristles which consist of 5 anterodorsal, 5 posterodorsal, and 5 posteroventral spines, all of which are short but stout. Apex with 2 dorsal, 1 anterior, 2 ventral, and 1 posterior spinelike bristle. Apex otherwise unmodified and without any protibial spine. The claws are sharp, pulvilli four-fifths as long as the claws. The middle claw more strongly arched; empodia slender, nearly as long as the pulvilli.

Wings: The venation is similar to *Microstylum* in most features. The first posterior cell is open but much narrowed at the margin. The second posterior cell has a short stalk or petiole at the base, separating it from the discal cell. Ambient vein complete; alula well developed. Color dark sepia brown throughout, scarcely lighter posteriorly behind the third vein.

Abdomen: The abdomen is a little longer than the wing, subcylindrical and tapering. The lateral margin of the first segment bears 8 stout, black bristles; remaining segments without bristles and only fine, subappressed pile.

Subgenus *Eclipsis* Bezzi

FIGURES 494, 950, 959, 1754, 1861

Eclipsis Bezzi, Ann. Soc. Ent. Belgique, vol. 52, p. 375, 1908. Type of subgenus: *Eclipsis maculiventris* Bezzi, 1908, by monotypy.

The second posterior cell is closed and petiolate. This character, together with strong macrochaetae, prominent ocellarium and the ending of the costa shortly past the anterior branch of the third vein were used by Bezzi to distinguish this fly based only on one species from *Microstylum* Macquart. The characterization must be considered extremely weak. In all of the many species I have examined, the costa ends just past the first branch of the third vein. In respect to the second posterior cell species vary widely from those with closed or open cell, with or without petiole, and are commonly with a distinct vein of varying length between the medial posterior crossvein and the upper end of the fourth vein (section one of the intercalary vein). The macrochaetae on the humerus may form a better basis of separation. In any case, I regard it as a weakly based subgenus of *Microstylum*. Length 23 mm.

Head, lateral aspect: The face is short but more prominent below. Occiput with long, bushy pile; near the middle there is a sublateral row of 12 or more rather long and quite stout pale bristles. Proboscis long, strongly compressed laterally, attenuate, the apex narrow and bluntly rounded. Palpus elongate, greatly flattened, the basal section very short, the entire palpus with long, stiff bristles and four apical bristles of great strength and moderate length.

Head, anterior aspect: There is a strong, circular mystax of long, stout, downwardly curved, pale bristles in 2 rows with shorter bristles immediately above. Upper portion of the face is bare of pile but everywhere pubescent. The face across the middle is one-fifth the total head width, slightly divergent below. Sides of the front with 3 extremely stout, long, black bristles and below them 6 or 7 long, bristly, pale hairs. The vertex is but little excavated and little widened, the ocellar protuberance extremely low and bearing 5 or 6 long, slender, yellow hairs.

Thorax: The mesonotum uniformly suberect, stiff pilose, the pile a little longer on the anterior margin, which is somewhat raised and abrupt. The mesonotum otherwise is only gently convex. Pronotum with 8 or more pairs of stiff, bristly hairs. Humerus with 5 extremely stout, long, black bristles. Notopleuron with 7 extremely long, stout, black bristles and with 4 other shorter bristles. Supraalar region with 4 stout, long bristles; postalar with 2; the scutellar margin with 2 pairs and the prescutellar region with a double row of 3 or 4 bristles, all of which are long and stout; upper posterior mesopleuron with 2; pteropleuron with 1; metapleuron with a cluster of 20 or more bristles. The lateral slopes of the metanotum have a transverse, double row containing 16 bristles; hypopleuron with none. Laterally the propleuron on each side bears a single immensely stout, long, black bristle. Pleuron pubescent; mesopleuron with scattered pile; hypopleuron with a few, long, slender hairs.

Legs: Hind femur stout but not thickened; it bears abundant, appressed, fine, short, setate pile dorsally, laterally and ventrally. It also bears 4 stout, short, black bristles along the middle of the lateral margin but none dorsally at the apex. Tibia of uniform width, slender, the bristles short but stout; there are 5 dorsal, 4 dorsolateral, 5 ventrolateral and at the apex 2 dorsal, 1 lateral, 2 ventral, 2 medial bristles. Middle femur with 2 stout, anterior bristles at middle and outer third and 1 on the basal third and 1 posteriorly at the outer fifth. The middle tibia has short bristles as follows: 5 dorsal, 4 anterodorsal with the middle two much longer, 4 anterior, 7 posterior, 4 posteroventral, and 4 anteroventral bristles. At the apex it bears one long, strong, ventral, 1 anterior, 1 anteroventral, 2 dorsal, and 1 posterior bristle. Anterior femur with 3 posterior and 3 anterior bristles. Anterior tibia with 5 posterior, 3 ventral, a double row of 4 or 5 dorsal bristles; and the apex with 2 long, stout, divergent, ventral bristles and also 1 posterior, 2 dorsal, and 2 anterior bristles; the apex simple. Claws long, curved, sharp. Pulvilli four-fifths the length of the claws and transversely ribbed or striate. Empodia stout, extremely sharp and attenuate on the apical half, not quite reaching the end of the pulvilli.

Wings: The venation is similar to *Microstylum* in most respects. The first posterior cell is closed with a long stalk. The second posterior cell is recurrent dorsally at the base and connected with the discal cell at one point only. Alula present, the ambient vein ends at the end of the submarginal cell.

Abdomen: The abdomen is cylindrical and tapering, sides of the first tergite with a transverse cluster of 15 short, stout, black bristles; the base of the second tergite laterally behind has a broader cluster of as many bristles, slightly less stout; remaining tergites without bristles laterally but with appressed, fine, black setae. Male terminalia large and conspicuous.

Genus *Mimoscolia* Enderlein

Figures 954, 963

Mimoscolia Enderlein, Wiener Ent. Zeitung, vol. 33, p. 168, 1914. Type of genus: *Mimoscolia fafner* Enderlein, 1914, by original designation.

Giant flies of exceptionally robust aspect, distinguished from the *Microstylum* Macquart chiefly by their stout form and by the stout distal spinous process at the end of the middle tibia. A small group of Chinese and Malagasy species belong here. Length 30 to 50 mm.

Head: The head is like *Microstylum*, the proboscis rather longer. There are one or two transverse grooves across the face above the epistoma, the third antennal segment is of uniform thickness or slightly dilated distally. Sides of the front with a vertical row of very stout bristles. The head is short, the eye especially short, high and flattened.

Thorax: The mesonotum is wide and stout, often pale pollinose, sometimes striped and has scattered short, stout setae. Humerus thickly beset with stiff pile and some weak bristles, or with numerous, very stout bristles and some short or slender ones. The lateral complement of stout bristles contains a cluster of 5 or 6 posthumeral, and an oblique row of 4 notopleural, 3 supraalar, 3 or 4 postalar, and 2 or 3 pairs upon the scutellum. Thorax otherwise very similar to *Microstylum*. Postmetacoxal area membranous.

Legs: All the femora are stout; only the anterior four a little swollen towards the base. Pile of legs appressed, setate and dense, the bristles numerous, conspicuous and very stout. In general the legs are similar to *Microstylum;* however, it may be noted that there tends to be an unusual development of the bristles in clusters of stout elements; these are generally situated on the posterior basal half of the anterior femur on its basal and ventral surfaces or especially along the middle of the anterior surface of the middle femur, which may have a rather close cluster of 12 spinous bristles. Tibia not unusual except at the apex of the middle tibia; here there is a stout, conspicuous lobe bearing 4 or 5 spinelike bristles. The bristles are greatly reduced along the anterior and ventral surfaces of the middle tibia. Claws stout, only a little sharpened at the apex; pulvilli long; the empodium bladelike.

Wings: The venation is similar to *Microstylum*.

Abdomen: The abdomen is conspicuously robust and strongly tapered, sometimes shortened; at the base it is as wide as the mesonotum. Male terminalia rotate one-half; the epandrium is cleft to the base and overlaps the base, with long, distal, divergent processes; the gonopod is large, the hypandrium prominent, elongate, convex, with a distal undivided process and extended downward as a medial flange. Females with the usual spines, about 8 pairs.

Distribution: Palaearctic: *Mimoscolia fafner* Enderlein (1914); *oberthurii* Wulp (1896); *vulcan* Bromley (1928).

Ethiopian: *Mimoscolia cilipes* Macquart (1838); *hildebrandti* Karsch (1885); *luciferoides* Bromley (1942); *radamae* Karsch (1884).

Genus *Daspletis* Loew

Figures 136, 168, 485, 988, 997, 1841, 1949

Daspletis Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 15, p. 337, 1859. Type of genus: *Daspletis vulpes* Loew, 1859, by monotypy.

Rather large flies related to *Microstylum* Macquart with the lateral metanotum bristly. They are readily recognized by the closed first posterior cell with its long stalk. The bristles and bristly pile are conspicuously developed, the face bristles are very long and stout and extend over the entire length of the face. Dorsal bristles of upper occiput often remarkably long. These flies tend to be blackish with pale colored pollen and yellow or red bristles and pile. Length 18 to 25 mm.

Head, lateral aspect: Face rather strongly produced, beginning shortly beneath the antenna; it is rounded, gibbose and abrupt dorsally. The eye is rather short, gently convex anteriorly and also posteriorly with the ventral three-fifths strongly recessive anteroventrally. The occiput is only moderately thick but more prominent medially, the slope to the eye margins gentle. Pile of occiput quite dense and long, pale and opaque on the lower half of the head, becoming shorter and more scanty through the middle where it is partly replaced by weak, short bristles. Dorsal bristles longer, sometimes proclinate and frequently of exaggerated length and thickness. The proboscis is long, strongly compressed laterally, attenuate, the lower surface nearly plane, the dorsal arch or slope gentle and the apex pointed, with rather abundant fine pile. It is directed nearly straight downward. The ventral portion on the basal half has numerous fine, long hairs. Palpus clearly of two segments, first segment excavated with stiff, long ventral pile, the second segment cylindrical with a number of bristles and bristly hairs ventrolaterally but with an especially dense tuft of long, curled bristles apically; apex porate. The antenna is attached at the upper third of the head; the first two segments relatively short, the first a little longer than the second. The third segment is about 1½ times as long as the first two, thickened distally, strongly attenuate on the basal half, swollen distally but with the apex greatly narrowed, truncate, and bearing a short, visible, dorsal spine. First and second segment ventrally with numerous, long, stiff, pale bristles, with some shorter bristles basally and laterally on the first segment and dorsally on both these segments.

Head, anterior aspect: Face below antenna one-fourth of head width and divergent below. Subepistomal region only moderately large, wide, concave, bare. The face is pubescent with fine, long, stiff, bristly pile laterally beginning shortly beneath the antenna but with only a band of micropubescence along the eye margin. Gibbous portion of face in the middle with exceptionally long, stout, attenuate, pale bristles, more or less bordered on either side by more dense, slender, shorter, similarly colored bristles that extend down the upper half of the subepistomal margins; the central bristles of the face reach almost the apex of the proboscis. Front pollinose, with a row of 6 stout, and 5 or 6 weak, long, subocular bristles and a submedial patch of flat appressed bristles which may be long and diverge outward. Vertex but little excavated; the ocellarium is large but quite low, the ocelli large and bearing across the middle 1 to 2 pairs of stout, long bristles with additional bristly hairs and between the posterior ocelli 1 pair of stout, long bristles. Anterior eye facets enlarged.

Thorax: The thorax is pollinose, pile of mesonotum rather scattered, long, coarse, opaque, more or less appressed and bristly; there is a double row of long, stout, anterior, acrostical bristles consisting of some 6 or 7 pairs. The dorsocentral bristles are also quite long and stout with 9 or 10 in each row. Humerus with 3 or 4 slender bristles and some pile. The following complement of bristles is present laterally: 3 very long, stout, posthumeral; a row of 4 or 5 notopleural, which may be reduced to 3; 4 to 6 supraalar; 3 to 4 postalar; and 3 to 4 pairs on the scutellum. Scutellum thick, convex, pollinose, with coarse, long pile laterally. In addition to the bristles on the mesonotum, there may be a rather dense, medial band of long, matted pile which is manelike. Propleuron with exceptionally dense pile, pale, opaque, matted, intermixed with the exaggerated ventral pile of the occiput and the upper pile of the coxa. Anterior collar with a wide band of bristly pile, long radiating and conspicuous with the more anterior elements accentuated. Posterolateral pronotum with 12 or more long, slender bristles. The upper half of the mesopleuron, anterior and posterior sternopleuron and the posterior hypopleuron with abundant, long pile. Upper pteropleuron with a tuft of long hairs, the metapleuron with a vertical band of long, slender bristles; lateral slopes of the metanotum with a patch of bristly pile. Postlateral metasternum and ventral metasternum with abundant long pile, postmetacoxal area membranous and pilose. Tegula with setae; anterior basalare with 5 or 6 long, coarse hairs.

Legs: All the femora are stout; the anterior femur is a little thickened towards the base, the dorsal, lateral and anterior pile is abundant, sometimes very abundant, coarse and more or less flat appressed. The following complement of bristles is described for the type of genus: hind femur with 10 to 12 dorsolateral; with 8 to 10 additional, equally long but more stout lateral bristles; with 4 or 5 stout, subapical, dorsal bristles. The ventral surface with abundant, long, fine, bristly pile. Hind tibia with 12 or more dorsolateral bristles, the row irregular and partly doubled, 2 or 3 stout medial bristles on the basal half, more than 12 anterodorsal, 4 anterior, 5 anteroventral, and 3 or 4 ventromedial bristles. Middle femur with a very long, posterior brush of fine pile and with 2 bristles posterodorsally subapically, and 6 anterior bristles. Middle tibia with very stout, distally attenuate, quite long bristles: 8 anterodorsal, 4 dorsal beginning at the basal third, 5 or 6 posterodorsal, 5 posterior, the middle 3 accentuated, and 3 or 4 posteroventral bristles. Anterior femur with a posterodorsal, spikelike cluster of exceptionally long bristles from near the base to near the apex, which contains about15 elements or sometimes fewer. Posteroventral margin with the same dense, long, matted fringe of coarse opaque pile found on the middle femur; these fringes are present in males only. This tibia has short, stout bristles for the most part: 7 or 8 anterodorsal, a like number of posterodorsal, 5 or 6 long, stout posterior and at least 3 or 4 long, stout, ventral bristles, besides additional, long, bristly pile posteriorly and ventrally. Apex of all the tibiae and the slender tarsi with long, sharp, stout, greatly accentuated bristles. Anterior basitarsus with a circlet of 10 bristles; all tarsi end in sharp, slender claws and with short, small pulvilli and long bladelike empodia.

Wings: The whole wing is vitreous hyaline. Marginal cell open by less than its maximum width; subcostal cell rather narrow; anterior branch of third vein ends above the wing apex; posterior branch ends behind by an equal distance. First posterior cell closed with a long stalk; base of second posterior cell strongly and abruptly swollen anteriorly; upper end vein of the discal cell very short, the lower vein greatly drawn back towards the base, the angle formed by this vein and the end vein of the fourth posterior cell is 135 degrees. Fourth posterior cell closed with a long stalk; anal cell closed with a very short stalk; alula of moderate width; ambient vein complete.

Abdomen: The abdomen is robust, shorter than the wings, basally as wide or wider than the mesonotum. The abdomen is robust terminally, a little narrowed; pile of abdomen long, coarse and flat appressed, except laterally but short in the females, directed forward on the fourth to the seventh tergites. Sides of the first tergite with 6 to 10 long, stout bristles. Sides of the second tergite near the base sometimes with a tuft of 8 to 10 long, stout bristles in males; the posterior margins laterally on the remaining tergites tend to have long, slender bristles in males but they may be absent. In the male there are six tergites with a trace of a seventh visible laterally. Females with eight tergites, the eighth tergite half as long as the seventh. Male terminalia large, prominent, rotate one-fourth to the left; epandrium cleft into dorsal forceps, long, slender and curved; hypandrium partly divided, besides fitting tightly together; all parts with numerous, densely beset, slender bristles. Female terminalia with 5 or 6 pairs of long, slender, sharp pointed spines.

Distribution: Ethiopian: *Daspletis hirtus* Ricardo (1925); *vulpes* Loew (1859).

Dioctobroma, new genus

Figures 101, 491, 967, 976, 1746, 1866

Type of genus: *Dioctobroma flavoterminatus*, new species.

Medium size flies with short, robust, cylindrical abdomen, characterized by conspicuous, shaggy pile on the head, thorax and legs and the prominent gibbosity of the face, which bears dense, long pile. Metanotal callosities with a large patch of stiff, erect pile. The only other genera in the Dasypogoninae with such pile on the metanotum are the genus *Dicolonus* Loew and the genera in the *Microstylum* Macquart complex.

Dioctobroma appears to be related to *Daspletis* Loew, differing in the dense, coarse pile of face and mesonotum and scutellum, and in the bristles, which, while quite numerous in both genera, are much weaker in *Dioctobroma*. The pubescence in *Dioctobroma* is long and exceptionally stout. The vein closing the fourth posterior cell is transverse to this cell. The scooplike process of the epandrium seen in *Daspletis* is absent. Only males known. Length 18 mm.

Head, lateral aspect: The head is comparatively long, because of the prominent occiput and extensive gibbosity of the face, but the eye is short. The upper fifth of the face is moderately extended, its length equals the thickness of the antenna and the lower part of the face is abruptly produced into a prominent, rounded, ventrally retreating gibbosity. The eye is high, flattened anteriorly, gently convex anteriorly and strongly recessive posteroventrally on the lower half. Bristles are absent but there are numerous coarse hairs on the upper third and the remainder of the occiput is covered with dense, exceptionally long, fine pile. The proboscis unusually robust, strongly attenuate on the outer fifth, both from the upper and lower surfaces. It extends well beyond the face, is directed horizontally forward and bears laterally and ventrally numerous, long, fine hairs which arise from the base; on the apical fifth laterally is a fissure from which arises a fringe of long, down-turned, bristly hairs and at the apex is a lateral tuft of similar hairs. Palpus clearly of two segments, the first excavated, the second quite elongate and slender, attenuate apically and with the apex bare and perforated.

The antenna is attached a little above the middle of the head and is elongate, especially on the third segment. The first segment is twice as long as the rather beadlike second segment, a little swollen toward the base and except on its apical fourth it is densely long, coarsely pilose on ventral and lateral surfaces, with an additional tuft of dorsomedial pile. The second segment is similarly pilose below and above at the apex. The third segment is, including the microsegment, nearly twice as long as the first two. This segment is narrow on the basal third, slightly dilated beyond and narrowed at the apex; it bears 4 or 5 dorsal setae and a stout, somewhat oblique microsegment with blunt, apical spine; this microsegment is as long as the second antennal segment.

Head, anterior aspect: The head is distinctly wider than the thorax and much wider than the mesonotum. Face below antenna wide, considerably more than one-fourth the head width, with nearly parallel sides on the upper half and slightly divergent below. The cheeks are rather prominent with a deep recess beside the eye. Face densely, coarsely pubescent, without pile on the short, upper portion but with dense, long, conspicuous, coarse hairs over the whole gibbous portion. Subepistoma large and oblique. The front is divergent, together with the vertex wider than the face. It is rather sunken and pollinose with a subocular band of coarse pile and a tuft of similar pile in the middle of each lateral half. The vertex is only moderately excavated, with slanting and pilose sides, and the ocellarium is remarkably conspicuous and high, with nearly vertical sides. The large anterior ocellus placed at the bottom of the process in front. The large space between the ocelli is covered with numerous, long, diverging, coarse hairs and there are several behind.

Thorax: The thorax is rather high and strongly arched both anteriorly and posteriorly. The mesonotum is covered with dense, coarse, subappressed pile, undifferentiated, but becoming generally longer behind the suture. Only the humerus, the lateral margin, and the disc of the scutellum bear pollen. The humerus is densely pilose, the lateral bristles on the mesonotum are long, but weak and slender. There are 3 notopleural, 3 or 4 supraalar, and 10 more slender postalar bristles, and the scutellar margin contains a double row of about 30 long, very slender bristles or bristly hairs and other long pile on the disc. Propleuron, posterior border of the mesopleuron, and its narrow dorsal border densely pilose. The mesopleural pile remarkably fine. Posterior corner of the sternopleuron with a few fine hairs; metapleuron densely beset with long, fine hairs, much of these crinkled. Metanotal callosity bullose and densely pilose, also pubescent, but the middle of the metanotum nearly bare. Prosternum fully dissociated; metasternum pilose laterally and below; basalare with fine pile and micropubescence.

Legs: The moderately long femora are quite stout but scarcely swollen. Together with the tibiae they are coarsely, long, subappressed pilose, the hind femur bears numerous, long, erect hairs in addition to the more abundant, somewhat appressed pile and there is a conspicuous, erect fringe of long pile on the ventral surface of the hind tibia. This tibia stout and slightly curved. Bristles on the legs are exceptionally numerous, moderately stout, sharp, and pale in color. The hind femur bears 4 dorsolateral bristles, 7 ventrolateral bristles confined to the outer half, and at the outer sixth an oblique circlet of 6 bristles. Hind tibia with 5 dorsolateral, 8 dorsomedial, 1 middle medial and on the outer half 3 ventrolateral bristles; apex with 10 bristles. Middle femur with 7 bristles along the anterior surface and 2 near the apex posteriorly; its tibia dorsally on each side has 7 or 8 bristles and several posteroventral bristles. Anterior femur with 1 bristle anteriorly in the middle; its tibia quite like the middle tibia and with 4 posteroventral bristles; apex of tibia simple. Claws stout, bluntly pointed at apex; the pulvilli long; the empodium bladelike.

Wings: Marginal cell widely open but second vein slightly recurrent. First and fourth posterior cells closed and stalked; anal cell closed in the margin and the wing notched. Alula moderately large, ambient vein complete.

Abdomen: The abdomen is a little less than twice as long as the thorax, comparatively robust, the first four segments are nearly or quite as wide as the mesonotum, the last two almost as wide. Pile short, scanty, appressed and setate but becoming longer along the downturned lateral margins, and especially conspicuous though scanty on the sides of the first three segments. Bristles absent, including the first segment. Surface of the abdomen chiefly shining with narrow pollinose fascia at the end of the second and third segments, expanding to triangular spots laterally and similar triangles on the next two segments. The first segment is more than one-third as long as the second. Males with seven tergites, the sixth is long, the seventh only one-fifth as long as the sixth and still shorter in length laterally; its posterior margin is curved and this segment tends to be tucked in beneath the sixth. Male terminalia large, completely rotate, broad and wide, the genital cavity is widely open, the hypandrium triangular; the superior forceps broad at the base, little longer than wide, and completely divided. The gonopod shorter.

Distribution: Ethiopian: *Dioctobroma flavoterminatus*, new species.

Dioctobroma flavoterminatus, new species

Length 16 mm. Male.

Head: The head is black in ground color with a yellowish brown triangle on the upper half of the face, along the eye margin extending medially towards each antenna and limited to the upper border of the extensive and rather abrupt facial gibbosity. The whole of the face is covered with coarse, appressed, long, brownish yellow micropubescence which becomes thinned over the central portion of the gibbosity, where the shining, black ground color shows. Cheeks shining black and bare; the quite long, slender palpus is black; the very large, quite robust, somewhat compressed proboscis is chiefly shining black, with the lower border on the outer half reddish and marked off by a lateral row of reddish bristles confined to the apex. The proboscis extends far beyond the face; the dense, copious, brownish yellow, coarse, bristly pile of the face extends as far as the proboscis, over the whole of the gibbosity, leaving an apilose, narrow strip beneath the antenna. Pile of front, ocellar tubercle, and the occiput and vertex are brownish yellow and coarse in character, except on the lower half of the occiput where it is long and fine and even more dense. Occiput without bristles. Ocellar tubercle with a broad tuft of 25 or 30 long, fine hairs. The antenna blackish with the third segment and the microsegment obscurely reddish brown below. The third segment is a little wider on the outer half than at the base, slightly narrowed at the apex. The microsegment is three or four times as long as wide with black spine at tip. Antennal pile coarse and unusually abundant laterally and ventrally on the third segment and brownish yellow.

Thorax: The thorax is shining black, with thin, brownish yellow pollen narrowly along the lateral margins and on the humerus and still more thinly on the disc of the thick scutellum. The mesonotum is rather strongly arched both anteriorly and posteriorly and is rather densely covered with long, coarse, undifferentiated, brownish yellow pile that is slightly appressed or may be erect on the humerus. Mixed in with the pile posteriorly are a few, long, coarse, black hairs behind the suture. Margin of the scutellum with several rows of numerous, long, slender, brownish yellow bristles. The posterior half of the disc has long pile of the same color. Notopleuron has 3 moderately stout, brownish yellow bristles, supraalar region with 3 or 4 others more slender, and the postalar callosity with at least 10 long, slender, similarly colored bristles. Pleuron largely shining black with scattered tufts of appressed, brownish yellow micropubescence on the upper mesopleuron, its posterior border and the posterior hypopleuron. The upper posterior mesopleuron has a patch of abundant, quite fine, brownish yellow pile. Halteres pale brownish yellow with the base dark brown. Lateral callosity of the metanotum with a large patch of brownish yellow, long, fine hairs. Metapleuron with a wide, vertical, oval patch of dense, very long, fine, similar hairs.

Legs: The femora are all quite stout, shining, very dark brown but not black. The tibiae are almost as dark as the femora, the tarsi likewise. Claws reddish on the basal half, black apically. Empodium flattened and reddish. Pulvilli long but rather slender and light reddish brown. Pile of the legs shaggy, coarse, long, slightly appressed dorsally, not quite erect ventrally, and everywhere abundant. On the tibiae the pile is somewhat less abundant laterally. Bristles unusually numerous and light reddish brown. Hind femur with 5 or 6 ventrolateral bristles, partly doubled near the apex, with 3 lateral bristles in the middle, 4 dorsolateral and 1 subapical dorsal pair, and 2 apical dorsomedial and 1 apical medial bristle. Hind tibia with 6 dorsolateral, 6 to 8 dorsomedial, and 3 ventrolateral bristles on the outer half. There is a comparatively long fringe of brownish yellow, erect pile on the ventral surface of the hind tibia. Ventral bristles of the tarsi and a few of the dorsal bristles black.

Wings: The wings are tinged with light, reddish brown, the costal cell rather distinctly yellowish, the base of the wing broader, the fourth posterior cell with a short stalk and shallow, marginal notch and the anal cell with a conspicuous notch. The wing tends to be somewhat paler in the middle of the post-marginal cell. The first posterior cell is closed and stalked, the third posterior cell is unusually wide on the margin, slightly wider than the fourth. Anal cell closed in the margin, the alula moderately wide, the posterior crossvein almost wanting, the third vein forks nearly opposite the discal cell. The anterior crossvein enters the discal cell slightly beyond the middle, the thyridium of the fourth vein lies before the base of the discal cell. Marginal cell widely open. Second and third veins curved forward into the costa at the same angle or curve.

Abdomen: The abdomen is robust, shining black to just beyond the middle of the fourth tergite. The sides of the second to fifth tergites have in the posterior corners triangular bands or patches of yellowish grey pollen. This patch is quite small on the fifth segment, largest on the second and third and on both of these it continues quite narrowly along the middle portion of the membranous, posterior margin. The remainder of the abdomen, the last part of the fourth segment and beyond shining, brownish orange with scattered, golden appressed pile. The terminalia are rather darker, more reddish brown, nearly black on the apical processes. The second tergite is the longest and the tergites slightly decrease in length beyond. The seventh tergite is visible dorsally but the exposed portion is perhaps only a fifth as long as the sixth segment; the terminalia rotate, the epandrium fully cleft to the base, each of the forceps large, relatively short and blunt. Gonopod prominent, the hypandrium bluntly triangular. The pile of the terminalia chiefly yellow with a few black hairs on the hypandrium. Sides of the first 3 tergites with abundant, yet loose, long, coarse, conspicuous hairs, most of them yellow, a few of them black. The black pile is more abundant on the second tergite and becomes shorter towards the middle of the tergite.

Type. Male, Ghanzi, North Bechuanaland, Mongalatsila, April 24, 1925, collected by J. Maurice. Type in the British Museum (Natural History).

Genus *Oratostylum* Ricardo

Figures 85, 487, 969, 978, 1961, 2050

Oratostylum Ricardo, Ann. Mag. Nat. Hist., ser. 9, vol. 15, p. 260, 1925. Type of genus: *Oratostylum lepidum* Ricardo, 1925, by original designation.

Medium size, elongate, attenuate flies of rather short pilose and bare, bristly appearance. They are allied to *Microstylum* Macquart and *Daspletis* Loew by the presence of bristly pile on the lateral metanotum. From *Microstylum* it is distinguished by the general swelling of the lower face, which extends to within a short distance of the antenna and there is abrupt; and from both *Microstylum* and *Daspletis* by the quite short proboscis, which is only a little longer than the face, cylindrical and attenuate and considerably narrowed on the outer third; also separated from both by the absence of the abruptly expanded base on the second posterior cell. Length 15 to 20 mm.

Head, lateral aspect: The head is of medium length. The face is rather strongly produced but only gently convex and receding below. It is short beneath the antenna on the upper fifth of the face and is then abruptly produced, continuing this way on the remainder and lower part. The occiput is conspicuous below, quite prominent and thick due to the marked anterior recession of the eye which begins a little above the middle of the head. The occiput everywhere has dense, fine, brownish white pile, the upper half with bristles; the lower bristles consist of 9 or 10 weak elements; the upper 12 near the vertex are quite stout and slightly curved forward. The proboscis is short, only a little longer than the face; it is gently swollen towards the base from the dorsal aspect but rather strongly swollen from the apex to the base laterally. The distal third is comparatively slender, and subcylindrical, the middle portion compressed laterally, a dorsal ridge is absent, the upper surface is slightly concave, the proboscis is directed horizontally forward. The apex both above and below bears erect, bristly hairs on the outer fifth; the middle ventral portion has a few, long, fine, stiff hairs. The palpus is three-fourths as long as proboscis, the second segment nearly twice as long as the first and a little more slender. Palpus elongate, slender, cylindrical and conspicuous; it reaches as far as the end of the face, clearly consists of two segments; the first segment is broad, excavated, convex ventrally, unusually elongate, with numerous, long, fine hairs. Second segment cylindrical with a few, fine hairs ventrally and at the apex; without apical pore. First segment distinctly split and hollowed out and troughlike.

The antennae are slender and generally similar to those of *Microstylum*. The third segment is of nearly uniform width and bears a small, more narrow, cylindrical, spine-tipped microsegment; first segment conspicuously and densely beset with long, coarse, stubby bristles on the lower surface and shorter bristles dorsally; second segment with only a few setae.

Head, anterior aspect: Sides of the face on the lower half with numerous, short, stiff hairs extending to the eye margin and continued more scantily but sublaterally on the upper portion of the gibbosity. Swollen part of the face from the base above to the epistomal margin with quite numerous, rather stout, moderately long, white bristles. The longer elements extend a little beyond the proboscis and are rather evenly distributed over the whole face and are intermixed with those which are shorter. Epistoma large but only slightly oblique, concave and bare. Sides of the front with 3 quite long, very stout bristles,which are directed forward and 2 other bristles above, more or less directed upward. The ocellar protuberance is broad and low and has 16 to 18 strong, moderately long bristles. The anterior eye facets strongly enlarged.

Thorax: The mesonotum only moderately high, rather gently convex in front; it has a sparse row of short acrostical bristles and an irregular band of numerous dorsocentral bristles which are also quite short and fine; these are replaced by long, slender, black bristles in the prescutellar area, 3 or 4 on each side. Mesonotum with stout bristles as follows: 2 notopleural, 2 posthumeral, 4 humeral, 4 supraalar, 7 or 8 postalar bristles. Scutellar margin with 6 to 9 pairs of long, brownish yellow bristles. Lateral slopes of metanotum with abundant, yellowish white pile; mesopleuron pilose, except anteriorly; pteropleuron micropubescent only; hypopleuron with some pile; metapleuron with a wide band of weak, moderately long, yellowish white, bristly hairs. Lateral metasternal slopes thickly pilose; postcoxal area membranous.

Legs: The hind femur is stout, and somewhat longer than the middle pair; it has short, appressed pile and a band of abundant, long, fine, pale, ventral pile, together with short, weak, brownish yellow bristles, 3 in an oblique row. These bristles consist of 3 dorsomedial elements at apex, 4 ventrally and laterally from base to the outer third, and with 1 weak lateral bristle at the outer third, another at the basal third. Tibia slender, with long, brownish white bristles: a double dorsal row; 6 anterodorsal and 5 dorsomedial bristles. It also has 2 ventral anterior bristles near the apex, 1 dorsoapical, and 5 on the ventral half at the apex. Middle femur stout with 2 pale bristles anteriorly at basal and middle third, 2 ventrally on the basal half and in addition a slightly shorter, ventral, basal cluster of 10 bristles. Tibia with long, slender, reddish to black bristles; 1 anteriorly at the basal fifth, 6 or 7 in an anterodorsal row, 8 in a posterodorsal row which are a little shorter, and 5 ventrally. Anterior femur with dense, yellowish, suberect pile and 3 bristles ventrally on the basal half. Anterior tibia with a conspicuous, double dorsal row of moderately long, oblique, black bristles, 12 in each row, and a posteroventral row of 4 long, oblique, brownish yellow bristles. Apex without spine. Tarsi end in long, thin, spatulate, subtruncate pulvilli and sharp claws, and a very stout, long, curved, strongly flattened empodium.

Wings: The wings are almost identical with those of *Neodysmachus* Ricardo; both these genera differ from *Microstylum* in the broad junction of the second posterior cell with the discal cell and the comparatively moderate expansion in width of the base of the second posterior cell. Fourth posterior cell closed with a short stalk; anal cell closed in the margin. Alula well developed; ambient vein complete. The wing is wide basally whereas *Neodysmachus* is not wide in the wing.

Abdomen: The abdomen at the base is nearly or quite as broad as the mesonotum; it is rather strongly tapered and distinctly flattened over the middles of the first three tergites; first tergite with a postmarginal, medially divided, laterally appressed tuft of long, brownish white pile. Second tergite with a basal and posterior pair of such banded tufts but succeeding tergites with only posterior bands. Lateral pile of the first tergite stiff but scarcely bristly or perhaps 4 or 5 of these elements might be called bristles; no bristles on succeeding tergites. Males with seven tergites, and with an eighth tergite very short and barely visible above. Female with eight tergites, the eighth is from a half to three-fourths as long as the seventh and the pile on the sixth and seventh is turned backward. Sternites with long, fine pile on the second and third; the first sternite appears to be reduced to an extremely short, narrow, chitinized ridge. Male terminalia large and similar to *Microstylum.* Female terminalia short, cylindrical, bearing 5 pairs of wide, apically rounded, scooplike spines; these terminalia also have a distinct row of bristly hairs or slender bristles.

Distribution: Ethiopian: *Oratostylum lepidum* Ricardo (1925).

Genus *Neodysmachus* Ricardo

FIGURES 115, 169, 488, 1054, 1063

Neodysmachus Ricardo, Ann. Mag. Nat. Hist., ser. 9, vol. 15, p. 262, 1925. Type of genus: *Neodysmachus setithoracicus* Ricardo, 1925, by original designation.

Medium size flies related to *Daspletis* Loew but with more slender form, fewer mesonotal bristles, less pronounced shaggy pile upon the male coxa and femur and tibia. Moreover, the first posterior cell is widely open instead of closed. Length 16 to 18 mm.

Head, lateral aspect: The face has a moderately prominent gibbosity on the lower three-fourths; the upper one-fourth is quite short. The eye is comparatively short but high, strongly recessive anteroventrally beginning at or just below the middle; the anterior profile is slightly flattened across the middle but otherwise convex and the upper half of the posterior profile is strongly convex. The occiput is only moderately thick and is obliterated on the upper sixth. Pile of occiput dense, rather short in the middle, and becoming long, bushy and conspicuous below; it is curled and opaque in color; mixed with the pile in the middle are 8 or 9 pairs of bristles and more numerous, longer dorsal bristles in 3 or more rows which arise behind the vertex. Proboscis of medium length, rather sharply pointed apically but with the lower surface plane, the dorsal surface curved to the apical point. The proboscis is somewhat compressed laterally with a conspicuous, dorsal, medial ridge and a number of long, stiff hairs ventrally near the base besides fine, long pile at the immediate apex. Palpus of two segments, the first segment excavated, with numerous, long, stiff, ventral hairs; the second segment is short and stout without apical pore and with several stout bristles at the apex and on all sides. The antenna is attached just above the middle of the head in profile; the first segment is a little longer than the second. The third segment is 1½ times as long as the combined length of the first two; it is quite strongly dilated dorsoventrally in the middle, tapered and narrowed both basally and apically; the narrowed apex is truncate and carries a short, distinct, visible spine; first segment and the second with 3 or 4 stout, rather short, appressed, bristly hairs dorsally; ventrally the first segment has 3 stout, extremely long bristles, longer than the combined length of the first 2 segments and also 2 short bristles, second with 1 or 2 long bristles.

Head, anterior aspect: The face below antenna one-fourth the head width and divergent below. Subepistomal area large and oblique but concave. Face micropubescent, relatively short because of the position of the antenna and in consequence the front is long. The gibbosity of the face has many extremely long, moderately thick bristles and with some long, stiff pile laterally and dorsally at the upper ledge of the gibbosity. The bristles and pile are continued down the sides of the subepistoma only on the upper half; the facial bristles extend out as far as the end of the proboscis. Front long, pollinose, with a dense tuft of bristly hair laterally and still longer, slender bristles along the eye margin. Sides of the front strongly dilated, convergent again at the vertex. The vertex very little excavated, the ocellarium moderately large but low, with 5 or 6 pairs of slender bristles on either side between the ocelli, at least 2 pairs between the posterior ocelli, and 2 or 3 pairs behind the ocelli. Anterior eye facets strongly enlarged.

Thorax: The thorax everywhere is short, micropubescent; the pile of the mesonotum is scanty, consisting of long, stiff, scattered hairs, more or less appressed, a poorly differentiated irregular narrow band of acrostical elements present, dorsocentral bristles strongly differentiated beginning at the extreme anterior margin, but becoming longer on the posterior half of the mesonotum. Scutellum with long, coarse hairs but with some bristles also. The following complement of bristles is present in the type of genus: 6 short humeral; all remaining bristles extremely long and rather stout; there are 2 immediate posthumeral, 4 notopleural in a more or less transverse row, 5 supraalar in a row, 7 postalar, 4 pairs of scutellar bristles. The scutellum is moderately thick and convex. Middle of mesonotum behind with a dense tuft of coarse, moderately long pile subappressed and extended backward. Propleuron with long, dense, coarse pile especially ventrally but also abundant dorsally and laterally; lateral pronotum with 9 bristles; anterior collar with 10 pairs of long, stout bristles. The anterior and upper posterior sternopleuron, the dorsal and posterior halves of the mesopleuron and the pteropleuron all have numerous, long, stiff hairs. The posthypopleuron has 4 or 5 pairs, the metapleuron with a medial vertical band of 10 to 12 stout, long bristles and as many somewhat more slender, shorter bristles; lateral slopes of the metanotum with a dense tuft of 20 or more long, coarse, bristly hairs; lateral slopes of the metasternum with abundant pile posteriorly, the ventral metasternum pilose, the postmetacoxal area membranous but pollinose and bearing dense, fine, curled, moderately long pile. Tegula with a few, stiff setae; anterior basalare with 5 long, coarse hairs.

Legs: The pile of the legs abundant, coarse, pale, opaque and flat appressed on the dorsomedial aspect of the hind femur, the whole dorsal surface of the middle femur, the dorsal and lateral surfaces of the hind tibia, the dorsal and anterior surfaces of the remaining tibiae, and on all of the tarsi. The following complement of bristles is present on the hind tibia of the type of genus: 2 lateral bristles on the basal third, 4 near the apex in a longitudinal row, with an additional apical dorsolateral bristle; this tibia has 6 dorsomedial, 4 or 5 ventromedial, 6 dorsolateral and 5 ventrolateral bristles. Middle femur with abundant, long, coarse, opaque, pale pile ventrally, anteriorly, and posteriorly. There is a weak posterior bristle at the basal third and a short, stout, anterior bristle at the apical third. This tibia has long but slender, strongly oblique bristles; there are 2 dorsal beyond the middle, 3 anterodorsal, 6 posterodorsal, and 8 apical bristles, 6 of them on the ventral half. Anterior femur similarly with dense, long pile and with 5 posterodorsal bristles on the outer half. Its tibia has short dorsal bristles, 8 anteriorly and 8 posteriorly, 2 posteroventral bristles, and ventrally some long, fine hairs. Apex without spine; all of the tarsi slender, the claws slender, sharp, curved at the base and bearing slender, reduced pulvilli, the anterior pair reduced to half the length of the claws, the middle and posterior pair reduced to less than half the length. Empodium bristlelike and not swollen.

Wings: The wings are hyaline without villi. Marginal cell open but only by a distance equal to its width; the anterior branch of the third vein ends shortly before the wing apex; the posterior branch a somewhat greater distance behind. First and second posterior cells widely open, the fourth closed with a short stalk; the lower vein ending the discal cell and ending the fourth posterior cell, while each is sinuous or curved, these veins are aligned. Anal cell closed in the margin. Alula moderately wide, the ambient vein complete.

Abdomen: The abdomen is subcylindrical and gently tapered. Pile of abdomen coarse, abundant, moderately long and flat appressed, becoming a little longer and subappressed laterally in the male on the sides of the first four tergites, but in the female laterally it is quite short and scanty though erect. Sides of the first tergite very slightly protuberant, pinched from the sternal margin by the metasternum in the second tergite and bearing 5 or 6 moderately stout bristles. Male with seven tergites, the seventh is three-fourths as long as the sixth; female with eight tergites, the eighth dorsally two-fifths as long as the seventh. Male terminalia rotate one-half; the hypandrium is large and triangular and the epandrium is split to its base and divergent. In the female are 5 pairs of moderately long, spoon-shaped spines, bluntly rounded at the apices.

Distribution: Ethiopian: *Neodysmachus setithoracicus* Ricardo (1925).

Genus *Callinicus* Loew

FIGURES 90, 503, 955, 964, 1037, 1046, 1698, 1750, 1792

Callinicus Loew, Berliner Ent. Zeitschr., vol. 16, p. 71, 1872. Type of genus: *Callinicus calcaneus* Loew, 1872, by monotypy.

Chrysoceria Williston, Journ. New York Ent. Soc., vol. 15, p. 1, 1907. Type of genus: *?Laparus pictitarsis* Bigot, 1878, by original designation.

Flies of medium size or slightly larger, of bare appearance and generally light coloration which is sometimes due to pollen. All the wing cells are open. It is rather easily distinguished from all other asilids except the Australian *Questopogon* Dakin and Fordham by the presence of the 2 stout backwardly turned spines at the apex of the middle tibia. It is probably related to *Questopogon*, from which it is separated by the protibial spur being single and not double or triple as it is in these Australian flies. There is also a possibility of relationship with the small flies of the American genus *Wilcoxia* James. Length 12 to 25 mm.

Head, lateral aspect: The head is of medium length; the face is prominent but nowhere produced or gibbous. The occiput is prominent only on the lower half, much of it due to the gradual anteroventral recession of the eye, which begins at the midplane of the eye. Occipital pile coarse and dense below, scanty above, largely replaced by weak or moderate bristles. The proboscis is comparatively robust and extends a short distance beyond the face; its form is subcylindrical. The ventral surface is plane, the dorsal surface abruptly arched to a point at the apex and this portion bears coarse, bristly pile; ventrally are a number of long, fine hairs more numerous at the base. Palpus clearly of two segments, first segment excavated and the second porate, spindle-shaped, with bristly hairs on all sides. The antenna is attached at the upper third and is approximately equal to the total head length. The first two segments are comparatively short and subequal, both with bristles below and again with comparatively long bristles dorsally at their apices. Second segment below with 1 or 2 stout bristles. Third segment slender, usually a little dilated towards the middle and bearing two microsegments, the first short, the second longer, stout and with spine at apex.

Head, anterior aspect: The face below antenna is approximately two-fifths the head width and slightly wider below; it is densely micropubescent with only a few scattered hairs on the upper portion and with a loose, narrow band of weak to moderately stout bristles above the epistoma. Subepistomal area large and oblique. Antennal microsegments directed obliquely downward. Front short, flat, pollinose, with a few fine setae laterally or weak bristles in the upper lateral corners. Vertex but little excavated, the ocellarium, however, large and prominent with vertical sides and 4 or 5 pairs of stout, long bristles. Anterior eye facets moderately enlarged.

Thorax: The mesonotum pollinose with scanty, scattered, setate pile. There is a distinct single or double acrostical row of bristles; dorsocentral elements are differentiated except on the anterior third and become long and prominent on the posterior third. The lateral complement of bristles consists of 5 or 6 weak humeral, or the humerus may have only coarse, bristly pile, 2 to 4 stout notopleural, 5 or more supraalar, 3 to 5 postalar, and 3 or 4 pairs of scutellar bristles which may be weak or strong. The scutellum is gently convex and with or without pollen. Propleuron with a band of weak bristles or bristly hairs on the collar but only with tufts of rather fine, long pile laterally. Posterior margin of the mesopleuron and upper sternopleuron with abundant pile, the pteropleuron and hypopleuron apilose. The metapleuron has a wide, oval patch of numerous, long, slender bristles and bristly hair. Ventral and lateral metasternum with abundant, long pile; postmetacoxal area membranous; prosternum dissociated. Tegula with bristly hairs.

Legs: All the femora are stout without being swollen. They are densely beset with appressed setae but bristles are reduced; on the hind femur are 2 rather stout, lateral bristles, usually at the basal third near the middle, and, in what is probably a continuation of this row, there are 2 or 3 dorsolateral bristles beginning at the apical fifth and extending up to the dorsal surface at the apex. There are also 2 or 3 dorsomedial apical bristles. Middle femur with 1 or 2 weak, ventral, basal bristles, 2 stout, posterolateral apical bristles, and the anterior femur has 1 or 2 weak or stout apical posterolateral bristles. All the tibial bristles rather long and stout, especially the dorsal and ventral rows of the middle tibia and the ventral row of the anterior tibia. Posterior tibia with 4 dorsolateral, 6 dorsomedial, 2 ventromedial and 7 ventrolateral bristles. The apical cluster consists of about 11 bristles. The hind basitarsus curves downward and inward slightly towards the apex. Middle tibia with 6 prominent anterodorsal, a like number of shorter posterodorsal and posteroventral, besides 4 prominent ventral and a single long, stout apical anteroventral bristle. Midtibial apex with a pair of long, stout backwardly turned spines or spinous bristles. On the anterior tibia the 2 or 3 oblique, ventral bristles are long and stout, the others shorter. Protibia without spine, its apical bristles stout but not otherwise unusual. Claws long, sharp, strongly bent at the apex; pulvilli well developed, empodium pubescent and swollen at base.

Wings: All of the cells in the wings including the anal cell widely open.

Abdomen: The abdomen is cylindroid with parallel sides, bare or pollinose, and with a bare appearance due to the greatly reduced, fine, scattered, setate, subappressed pile which characterizes most species. Sometimes the pile is longer laterally and marginally upon the tergites. Males with seven tergites, the seventh quite short and sometimes nearly concealed. Females with eight tergites but with the eighth quite short and almost concealed; the seventh tergite, however, large and long. Only the first tergite with bristles laterally which may be stout and quite numerous or placed by a tuft of bristly pile. Male terminalia generally fully rotate. The epandrium is moderately long, cleft to the base, each half more or less triangular, shieldlike, and apposed. Gonopod moderate in extent, the hypandrium large but quite short, being turned upward as a blunt, obtuse plate. Female terminalia with a row of stout spines on the acanthophorites.

Distribution: Nearctic: *Callinicus calcaneus* Loew (1872); *pictitarsis* Bigot (1878); *pollenia* Cole (1919); *vittatus* Wilcox (1936).

Genus *Ceraturgus* Wiedemann

Figures 105, 521, 966, 975, 1781, 1788

Ceraturgus Wiedemann, Analecta entomologica . . . , p. 12, 1824. Type of genus: *Dasypogon aurulentus* Fabricius, 1805, by monotypy.

Medium size or large species with drooping head and abdomen, the latter comparatively robust and cylindroid. Flies which frequently have conspicuous, pollinose, abdominal fascia and mesonotal vittae. They are readily recognized by the characteristic and exceptionally elongate antenna, much of which is due to the extra terminal segments attached to the third antennal segment. The first of these additional segments is usually quite short, the second as long as the preceding two segments together and densely short plumose. Length without antenna 15 to 25 mm.

Head, lateral aspect: Head of medium length, the face prominent, both above and below, but nearly plane or very slightly convex and nowhere extended or gibbous. The occiput is quite thick or prominent except at the vertex, but its thickness increases rapidly from the eye margin. Pile of occiput dense. Proboscis stout, distinctly compressed laterally, the apex blunt and the base below with 3 or 4 pairs of long, slender bristly hairs. Palpus clearly of two segments, the first segment hemicylindroid, the second porate and both with numerous slender bristles and bristly pile. Antenna attached at the upper fourth of the head, much longer than the total head length, the first and second segments tend to be subequal and together about half as long as the third segment considered without its additional terminal segments. The third segment bears terminally a short, robust segment, which is at least as long as wide, and beyond this a remarkably long, extensive, flattened, somewhat wider and bluntly pointed segment which is densely short plumose on all surfaces. This final terminal segment is approximately as long as the whole remainder of the third segment.

Head, anterior aspect: The face at antenna is about two-fifths the total head width, very slightly wider below. Face densely micropubescent with bristly pile on the upper half extending nearly to the antenna, and below similar pile and slender bristles which become considerably longer above the epistoma. The subepistomal area is large, oblique, and nearly plane. Front quite short, raised medially, pollinose and bristly pilose laterally. The vertex is moderately but distinctly excavated, the ocellarium large, broad and low and bearing 3 or 4 pairs of long slender bristles and additional pile. Anterior central eye facets strongly enlarged.

Thorax: Mesonotum rather bare, for the most part feebly shining and with some opaque stripes; the humeri, the lateral margins, and part of the scutellum usually pale pollinose. The pile is very fine and suberect with a medial acrostical band and an equally narrow dorsocentral band expanded anteriorly and with a complement of rather weak bristles as follows: no humeral, 2 notopleural, 3 to 5 supraalar, 3 postalar, and no scutellar. The scutellum is gently convex with transverse basal crease and a band of fine, rather long marginal pile. The pronotal collar bears a band of long, bristly pile, the lateral pronotum and propleuron with only tufts of long, abundant pile. The posterior half of the mesopleuron and upper sternopleuron with a wide conspicuous vertical band of long, slender bristly hairs or weak bristles. Metanotal callosity micropubescent only. Lateral and ventral metasternum with long pile; postmetacoxal area membranous.

Legs: The femora are stout without being swollen and bristles are nearly absent. The hind femur bears 5 weak dorsolateral bristles and no apical bristles, the middle femur bears 1 or 2 anterobasal bristles, the anterior femur usually none. Pile of femora fine, rather strongly appressed on the hind pair, a little longer, more delicate and more nearly erect on the first and second pairs. All the tibiae bear somewhat longer, stout, attenuate bristles: hind pair with 7 or 8 dorsomedial, 6 dorsolateral, the apical cluster contains 14, of which 1 is dorsal, 4 are medial, and the remainder ventral and lateral; middle tibia with 5 anterodorsal, 4 anteroventral, 7 or 8 quite short, weak posterodorsal, and 5 to 7 posteroventral bristles. On the anterior tibia the dorsal bristles are quite short. There are 7 or 8 long posteroventral bristles, those beyond the middle quite stout, and ventrally there is a double row of exceptionally long bristly hairs. Protibia without spine at apex. All the tarsi characteristically short, including the basal tarsal segment. Claws stout, sharp, strongly curved on the outer half, the pulvillus well developed, the empodium bladelike and pubescent.

Wings: Marginal and all the posterior cells widely open; anal cell narrowly open or closed in the margin.

Abdomen: Comparatively short and robust, subcylindrical and generally rather convex. The abdomen at base is approximately as wide as the mesonotum. Pile of abdomen abundant but exceptionally fine. It is rather long along the lateral margins, becoming shorter and appressed towards the middle of the segment. The abdomen is usually more or less shining black with conspicuous pale colored pollinose posterior fascia. Males with seven tergites, the seventh quite short and more or less concealed. Females with eight tergites, the fifth and remaining tergites gradually shortened, the eighth is comparatively short and perhaps less than one-third the length of the fourth tergite. Female terminalia with a circlet of stout, strong spines, 9 pairs on each side of the acanthophorites. Male terminalia with short, quite broad, medially cleft and apposed epandrium. The proctiger broad, short, polished, with posterior protuberance. The gonopod of only moderate length and size, with short posterior process, often bearing a dense, terminal tuft of curved bristles and bristly hairs. Hypandrium broad, short, but with exceptional depth. The male terminalia are rotate, usually about 90 degrees in dried specimens.

Distribution: Nearctic: *Ceraturgus aurulentus* Fabricius (1805); *cruciatus* Say (1823); *elizabethae* Brimley (1924); *mabelae* Brimley (1924); *mitchelli* Brimley (1924); *nigripes* Williston (1886); *similis* Johnson (1912).

Neotropical: *Ceraturgus ?dimidiatus* Macquart (1847); *geniculatus* Bigot (1878); *rufipennis* Macquart (1847).

Palaearctic: *Ceraturgus hedini* Engel (1934); *kawamurae* Matsumura (1916).

Locality unknown: *Ceraturgus ?andocides* Walker (1854).

Malloch (1917) describes the larva of *Ceraturgus cruciatus* Say.

Genus *Ceraturgopsis* Johnson

FIGURES 122, 496, 1039, 1048, 1741, 1780, 1783

Ceraturgopsis Johnson, Psyche, vol. 10, p. 111, 1903. Type of genus: *Dasypogon cornutus* Wiedemann, 1828, by original designation.

Rather large, robust species of flies with comparatively short pile but with pollinose bands and vittae as in *Ceraturgus* Wiedemann. They are related to *Ceraturgus*, differing principally in the type of antenna and in the somewhat stouter femora and in the presence of femoral clusters of bristles. Length 15 to 20 mm.

Head, lateral aspect: Face rather prominent but nearly plane; the eye is short especially above and below, its profile gently rounded in front, bluntly angulated in the middle behind so that the upper and the lower halves are nearly plane. The eye is rather strongly recessive anteroventrally. Occiput thick and prominent, with dense, long pile in the middle and lower half; replaced by stout, strong bristles on the upper part, consisting of some 25 pairs which are straight. The proboscis is laterally compressed on the apical half where it is gradually tapered; the apex is bluntly rounded and bears stiff pile apically and below and some long, slender bristles ventrally on the basal half. It is directed obliquely forward and carries a conspicuous medial ridge. Palpus with the first segment excavated, the second microporate, short, basally stout, rather tapered towards the apex. The pile is scanty and fine and restricted to the middle. Antenna situated at the upper third of the head, long and slender, longer than the head, the first two segments of equal length, the third more than twice as long as the first two. The third segment is somewhat compressed laterally, of uniform width to its apex, where it bears two microsegments, the first short and annular, the second expanded until considerably wider than the first, distinctly flattened, and in its flattened profile bluntly rounded with attached dorsoapical spine. First segment with numerous, stiff hairs ventrally, a few above, the second with 2 moderately long, oblique, ventral bristles and 2 dorsal setae, the third with a few dorsal setae.

Head, anterior aspect: Face below the antenna one-third of the head width and slightly wider below. Subepistomal area short, oblique, concave and bare. Face densely micropubescent with dense, bristly hair from antenna to epistomal margin, leaving only the narrow ocular margins bare. The bristles on the lower third of the face are longer and a little stouter. Front pubescent with dense, stiff pile laterally, the vertex only moderately excavated, with very large, low, ocellar protuberance which bears large ocelli and 5 pairs of stout, rather long bristles over the middle and 1 or 2 additional fine hairs. Eye facets centrally enlarged.

Thorax: The thorax is mostly pollinose, bare and shining. The mesonotum is densely covered with long, fine, suberect pile, a wide distinct band of acrostical bristles followed by a narrow, bare stripe; dorsocentral elements are undifferentiated except behind; in front of the scutellum are 5 or 6 rather long pairs, which are stout. There is a complement of stout, long, lateral bristles as follows: 12 on humerus, 12 on notopleura, 11 on supraalar, 6 on postalar, and 8 pairs on scutellar margin. Scutellum flat and pollinose, with a few scattered hairs. Propleuron with dense tufts of long, fine pile, the posterior propleuron with 4 or 5 stout bristles. Posterior mesopleuron with abundant, long, fine pile continued on the sternopleuron. Hypopleuron and pteropleuron apilose. Metapleuron with a wide, dense band of long, stiff bristly pile. Metanotal slopes micropubescent only; lateral metasternum pilose; metasternum proper chitinized, with fine pile; postmetacoxal area membranous; tegula with several bristles. Prosternum dissociated.

Legs: The legs are rather stout, comparatively short, the bristles numerous and well developed, the pile rather short, appressed and dense. The following complement of bristles is present: hind femur with 6 lateral, 6 lateral apical, 6 medial apical, and 2 dorsal; in addition there are 2 dorsal subapical bristles. This tibia bears 4 ventrolateral bristles, beginning before the middle, 7 dorsolateral, and 8 dorsomedial; and the apex has 1 dorsal, 3 lateral, 5 ventral, and 2 medial bristles. Middle femur with a posterodorsal and subapical cluster of 10 bristles, 5 or 6 anteroapical, and 2 anterior bristles in the middle; its tibia has bristles similar to the hind pair. Anterior femur similar to the middle femur in respect to the cluster of bristles. Anterior tibia with 7 anterodorsal, 5 posterodorsal, 6 rather longer, stout posterior bristles; the apical bristles are especially stout and long, 10 in the circle and no spine present. All tarsi with sharp claws, long, spatulate pulvilli and long, basally thickened empodium.

Wings: The marginal cell of the wings is widely open; the anterior branch of the third vein ends just before the wing apex; posterior branch ends well behind the wing apex. All posterior cells widely open; anal cell closed in the margin; second basal cell ends in three veins; alula moderately long; ambient vein complete; wings hyaline.

Abdomen: The abdomen is comparatively short and robust, a little shorter than the wing; the abdomen is as wide as the thorax basally, bare and shining with prominent, pollinose, posterior fasciae on the tergites. Male with seven tergites, the seventh one-fourth as long as the sixth. Female with eight tergites, the eighth very short and only a fifth as long as the seventh which is also a little shortened. Pile of abdomen dense but fine, suberect, a little longer on the sides of the first two tergites. First tergite with 6 or 7 weak bristles laterally. Male terminalia rotate one-fourth to the left. Epandrium divided into superior forceps. Hypandrium very short. The gonopod is moderately long, bearing as in *Ceraturgus* a dense tuft of long, fine pile. Female acanthophorites with spines.

Distribution: Nearctic: *Ceraturgopsis cornutus* Wiedemann (1828); *oklahomensis* Bromley (1934).

Genus *Cyrtopogon* Loew

FIGURES 116, 531, 1038, 1047, 1827, 1850, 1982

Cyrtopogon Loew, Linnaea Entomologica, vol. 2, p. 516, 1847. Type of genus: *Asilus ruficornis* Fabricius, 1794. Designated by Rondani, 1856, the first of four species.

Euarmostus Walker, Insecta saundersiana, vol. 1, pt. 2, p. 102, 1851. Type of genus: *Euarmostus bimacula* Walker, 1851, by monotypy.

Enarmostus Walker, List . . . dipterous insects . . . British Museum, suppl. 2, p. 423, 1854, *lapsus*.

Philammosius Rondani, Dipterologiae italicae prodromus, vol. 1, p. 156, 1856. Type of genus: *Dasypogon fimbriatus* Meigen, 1820, by original designation. Kertész and Engel both place *Philammosius* Rondani in synonymy under *Stichopogon* Loew; however, Engel places the type of genus, *Dasypogon fimbriatus* Meigen, in synonymy under *Cyrtopogon lateralis* Fallen.

Cyrtopogon has 1 subgenus, *Palamopogon* Bezzi.

Medium size flies ranging from very short pilose species with the abdomen almost entirely bare and pollinose, at least along the posterior margins, to species in which thorax, abdomen, head, and femora are densely, long pilose. The face is characteristically protuberant and rounded both from lateral and dorsal profiles, retreating above to the antenna and below to the ocular margins and characteristically covered with dense, long pile ranging from fine to stiff, slender bristles. The head is wide, the eyes flattened. The third antennal segment is slender with at least two obliquely directed microsegments. All marginal cells open and secondary sex characters or ornaments frequent, especially on the tarsi. Length 9 to 22 mm.

Head, lateral aspect: The face is conspicuous, gently rounded and protuberant, retreating to the antenna above and to the epistomal margin below. The eye is of moderate length, the anterior profile oval; the eye is moderately recessive anteroventrally and slightly flattened near the facial margin. The occiput is prominent especially on the lower half due to the recession of the eye; it is nearly obliterated near the vertex. Pile of occiput abundant, long and fine, especially dense on the lower half. Dorsal bristles may be absent but in the type of genus near the vertex there are numerous, strongly proclinate, long, slender, bristly hairs. The proboscis is short, in the type of genus only slightly projected beyond the face, obtusely rounded at apex and distinctly widened laterally towards the base. In some species it is shorter than the face, not widened at the base and somewhat more obtuse at the apex; the proboscis carries fine, short, stiff hairs at the apex and abundant, long, fine pile at the base; medial ridge absent; it is usually directed obliquely forward. Palpus clearly of two segments; first segment excavated, second segment porate, rather slender, slightly attenuate, with some fine, bristly pile extending on to the apex but chiefly dorsal in character.

The antenna is attached at the upper third of the head and is comparatively long and slender and slightly shorter than the head. The first two segments of nearly equal length, the first generally a little longer. The third segment is nearly twice as long as the first two combined and tends to be slightly and gradually expanded over the middle; it is a little narrowed at the apex, which bears two microsegments. The first microsegment is quite short; the second is longer and may be a sixth to a third as long as the third segment proper. The ultimate microsegment is held characteristically at an oblique angle, its apex bears a minute, short, distinct spine. The pile of the first consists of long, stiff, subappressed, bristly hairs; second segment with similar but fewer hairs but usually with at least one, sometimes several, long, stiff, oblique, stout bristles; third segment dorsally with a few appressed, short bristles.

Head, anterior aspect: The face below antenna less than one-third the width of head and slightly divergent below. The subepistomal area is moderately large, oblique, concave, with a deep ocular recess or crease on either side along the eye margin. The face is densely pubescent and everywhere, except along the immediate eye margin, covered with long, somewhat curved pile varying from fine and delicate to stiff hairs or not infrequently slender bristles which may become a little more stout in character above the epistomal margin. The front is slightly divergent, densely pubescent along the eye margins or sometimes over the whole front. The entire front is covered with abundant, long, fine pile; the vertex but little excavated, the ocellar protuberance low, carrying large ocelli and 2 or 3 pairs of long, slender bristles, of which 1 pair may be accentuated, and some additional pile. Eye facets centrally enlarged.

Thorax: The thorax is dully pollinose or moderately shining, often with pattern of spots and stripes of dense, appressed, micropubescence or pollen. The pile of the mesonotum varies from dense, fine, erect pile over the whole mesonotum, rather long in character and sometimes with the middle portion appressed, to species in which the pile is of similar character, though shorter, but rather scanty. Acrostical bristles or hairs are present, poorly differentiated from the remaining pile. The pile on the posterior half of the mesonotum is usually only slightly longer; the dorsocentral elements are poorly or not at all differentiated. Humeral pile long and abundant and the following complement of lateral bristles present: 1 to 3 long, slender or stout notopleural, 2 or 3 slender supraalar, 3 or more slender postalar, and 7 or 8 pairs of scutellar bristles. In some species these lateral bristles are rather stout and fewer in number, with 2 notopleural, 3 supraalar, 1 postalar, and 2 to 4 fine, marginal scutellar elements. Surface of scutellum convex, with abundant, long, fine or stiff pile. The propleuron bears especially abundant, long, matted tufts of pile. Pronotal collar with a wide band of stiff pile but without true bristles. The posterior half of the mesopleuron and the upper posterior corner of the sternopleuron bear abundant, long, fine pile; pteropleuron and hypopleuron apilose, except that the upper anterior hypopleuron in the type of genus carries a conspicuous tuft of moderately stiff, short pile. Metapleuron with a wide middle band of long, slender bristles. Metanotal slopes micropubescent only; lateral slopes of metasternum with dense, long pile, the metasternum proper is chitinized and bears abundant, long pile. Postmetacoxal area membranous; tegula with numerous, stiff bristles in the type of genus. Prosternum dissociated.

Legs: The femora are moderately stout without being dilated. In the type of genus they bear rather dense, long, fine pile chiefly erect or more or less suberect dorsally, or in the more short pilose species reduced in content. The femora tend to lack conspicuous bristles, and such bristles as are present are quite weak and little more than stiff hairs. The tibiae are notable for abundant, long, stiff bristles. The type of genus shows the following complement of bristles: hind femur with 2 stout bristles near the middle laterally, the ventral fringe of pile abundant; middle femur with 4 anterior bristles before the middle and 2 or 3 weak bristles anteriorly near the apex; the anterior femur is rather similar to the middle pair. Hind tibia with well developed bristles, 5 ventrolateral, 8 to 10 dorsomedial, 8 dorsolateral; confined to its outer half are 4 lateral and 4 ventral bristles. The apex bears 4 medial, 1 dorsal subapical, 2 lateral, and 5 ventral bristles. Remaining pile of hind tibia long and fine. Middle tibia with 7 or 8 anterodorsal, 6 to 8 posterodorsal, and between these rows there may be inserted 3 or 4 additional bristles; and with 7 or 8 posterior, 5 or 6 ventral, and 3 or 4 anteroventral bristles. The apical circlet has 13 bristles with 6 on the ventral half. Anterior tibia and apical circlet rather similar to the middle pair; anterior bristles are absent, the dorsal bristles shorter. Apex of anterior tibia without spine. Tarsi end in sharp, slender claws, well developed pulvilli and empodium strongly thickened at the base.

Wings: The marginal cell widely open; all posterior cells and the anal cell widely open. Second basal cell ends in three veins, the upper and lower end veins of the discal cell of nearly equal length. Alula small; ambient vein complete.

Abdomen: The abdomen varies from wide and robust to species in which it is slightly less wide than the mesonotum and gently tapered to an obtuse apex. The abdominal pile varies from microscopic, short setae in some species to others which have long pile on the first three tergites, becoming progressively shorter and more scanty until there is only a little fine, short pile terminally. In the male eight tergites present, the seventh and the eighth both shortened to half or less than half the length of the sixth. Female with eight tergites in the type of genus, the eighth being quite short and virtually concealed by the seventh; it is a little longer in other species. Male terminalia rotate to a variable extent, usually about one-fourth to the left, sometimes not at all. The obtuse epandrium may be fully cleft or only notched or sulcate near the apex; in either case strongly divergent with the short proctiger placed between. Gonopod prominent, long, obliquely thrust upward, and the hypandrium long and broad and convex. Female with 5 or 6 pairs of short spines on the acanthophorites which protrude but a short distance and are weakly developed.

Cyrtopogon is a dominant, Holarctic genus. There are numerous species in Europe and there is a still greater concentration in the Pacific coastal states of the United States. The species *Cyrtopogon africanus* is atypical but as I have only a female to study, I prefer to leave it in this genus for the present. These flies frequent low growing shrubs on the edges of forested areas and may be abundant on the bark of logs deep within forests.

Distribution: Nearctic: *Cyrtopogon ablautoides* Melander (1923); *albifacies* D. E. Johnson (1942); *albifrons* Wilcox and Martin (1936); *albovarians* Curran (1924) [=*albitarsis* Curran (1923) female]; *aldrichi* Wilcox and Martin (1936); *alleni* Back (1909); *anomalus* Cole (1919); *auratus* Cole (1919) [=*albistylus* Curran (1922) male]; *aurifex* Osten Sacken (1877); *auripilosus* Wilcox and Martin (1936); *banksi*

Wilcox and Martin (1936); *basingeri* Wilcox and Martin (1936); *beameri* Wilcox and Martin (1936); *bigelowi* Curran (1924); *bimacula* Walker (1851) [=*melanopleurus* Loew (1866)]; *caesius* Melander (1923); *callipedilus* Loew (1874), *callipedilus nigritarsis* Wilcox and Martin (1936); *chagnoni* Curran (1939); *curtipennis* Wilcox and Martin (1936); *curtistylus* Curran (1923); *cymbalista* Osten Sacken (1877); *dasyllis* Williston (1893); *dasylloides* Williston (1884); *dubius* Williston (1884) [=*tacomae* Melander (1923)]; *evidens* Osten Sacken (1877); *falto* Walker (1949) [=*chrysopogon* Loew (1866)]; *fumipennis* Wilcox and Martin (1936); *glarealis* Melander (1923); *idahoensis* Wilcox and Martin (1936); *infuscatus* Cole (1919); *inversus* Curran (1923); *jemczi* Wilcox and Martin (1936); *laphriformis* Curran (1923); *leptotarsus* Curran (1923); *leucozonus* Loew (1874); *lineotarsus* Curran (1923); *longimanus* Loew (1874); *lutatius* Walker (1849); *montanus* Loew (1874), *montanus wilcoxi* James (1942); *lyratus* Osten Sacken (1878); *marginalis* Loew (1866); *nitidus* Cole (1924); *nugator* Osten Sacken (1877); *perspicax* Cole (1919); *planitarsus* Wilcox and Martin (1936); *platycauda* Curran (1924); *plausor* Osten Sacken (1877); *praepes* Williston (1884); *predator* Curran (1923); *princeps* Osten Sacken (1877) [=*cretaceus* Osten Sacken (1877)]; *profusus* Osten Sacken (1877); *pulcher* Back (1909); *rainieri* Wilcox and Martin (1936); *rattus* Osten Sacken (1877); *rejectus* Osten Sacken (1877) [=*positivus* Osten Sacken (1877)]; *rufotarsus* Back (1909); *sansoni* Curran (1923); *semitarius* Melander (1923), *semitarius californicus* Wilcox and Martin (1936); *stenofrons* Wilcox and Martin (1936); *sudator* Osten Sacken (1877); *swezeyi* Wilcox and Martin (1936); *tenuis* Bromley (1924); *thompsoni* Cole (1921); *tibialis* Coquillett (1904); *vanduzeei* Wilcox and Martin (1936); *vandykei* Wilcox and Martin (1936); *varans* Curran (1923); *vulneratus* Melander (1923); *willistoni* Curran (1922).

Palaearctic: *Cyrtopogon annulatus* Hermann (1906); *carpathicus* Bezzi (1927); *centralis* Loew (1871); *chinensis* Engel (1934); *culminum* Bigot (1885) [=*montanus* Bigot (1884) not Loew]; *daimyo* Engel (1934); *flavimanus flavocalceatus* Mergerle (ms.) in Meigen (1820); *flavimanus nigrimanus* Jaennicke (1867); *fulvicornis* Macquart (1834) [=*?erythroceros* Schummel (1837), *interruptus* Meigen (1838), *ochraccus* Schiner (1868), *ochrocerus* Dufour (1852), *fulvicornis variicornis* Bezzi (1899)]; *lapponicus* Zetterstedt (1838) [=*lateralis* Zetterstedt (1838)]; *lateralis* Fallen (1814) [=*fimbriatus* Meigen (1820)]; *longibarbus* Loew (1857) [=*alpestris* Jaennicke (1867)]; *luteicornis* Zetterstedt (1842), *luteicornis pollinosus* Frey (1911); *maculipennis* Macquart (1834) [=*flavimanus* Meigen (1820) female, *litura* Zetterstedt (1842), *?monticola* Schummel in literature]; *meyer-dürii* Mik (1864) [=*oculifer* Bigot (1884), *quadrizonatus* Loew in literature in Schiner (1864)]; *pedemontanus* Bezzi (1927); *perrisi* Séguy (1927); *pictipennis* Coquillett (1898); *pulchripes* Loew (1871); *pyrenaicus* Villeneuve (1913); *quadripunctatus* Hermann (1906); *ruficornis* Fabricius (1794); *?rufitibialis* Bigot (1878); *tenuibarbus* Loew in Rosenhauer (1856).

Ethiopian: *Cyrtopogon africanus* Ricardo (1925); *albopilosus* Engel (1930).

Oriental: *Cyrtopogon khasiensis* Bromley (1935); *laphrides* Walker (1851); *laxenecera* Bromley (1935).

Country unknown: *Cyrtopogon maricus* Walker (1849).

The egg, larva and pupa of *Cyrtopogon lateralis* have been described and illustrated by Melin (1923).

Subgenus *Palamopogon* Bezzi

Eupalamus Jaennicke, Berliner Ent. Zeitschr., vol. 11, p. 86, 1867. Type of genus: *Cyrtopogon longibarbus* Loew, 1857, as *Eupalamus alpestris* Jaennicke, 1867, by monotypy. Preoccupied, Hymenoptera, 1845.

Palamopogon Bezzi, Mem. Soc. Ent. Italiana, vol. 5, p. 61, 1927. Change of name.

While Engel (1930) and Séguy (1927) both place *Eupalamus* in synonymy under *Cyrtopogon* Loew, with no mention by either of them of Bezzi's action in changing the name, it is possible that these flies should be recognized as Bezzi has suggested, at least as a subgenus of *Cyrtopogon.* There is considerable difference in the figure of the head as given by Seguy and taken from Jaennicke, and the figure given by Engel in the above cited references. According to descriptions of *Cyrtopogon longibarbus* Loew, the scutellum is bare except for discal pollen and black marginal hairs. It would appear to be readily separable from the Nearctic *Nannocyrtopogon* Wilcox and Martin by the absence of stout and conspicuous scutellar bristles. There is only the one species assigned to this subgenus.

Genus *Lithoeciscus* Bezzi

Lithoeciscus Bezzi, Mem. Soc. Ent. Italiana, vol. 5, p. 61, 1927. Type of genus: *Holopogon heydeni* Loew, 1871, by original designation.

Small flies which appear to be related to *Holopogon* Loew through the character of the stout hind tibia and hind basitarsus but which are probably more nearly related to *Nannocyrtopogon* Wilcox and Martin. From this last named genus they differ in the shorter face covered with numerous, long, fine, bristly hairs. The third antennal segment is long and scarcely constricted at base. The scutellum is flat, although the rim is rounded; its disc is densely appressed micropubescent without other pile and the margin has several bristles. Abdomen is rather bare and sternites with only a few, scattered, fine, long hairs. Mesonotum has well developed dorsocentral bristles beginning at the middle. Length 9 mm.

Head, lateral aspect: The head is of medium length, the face quite short and barely visible in profile throughout and retreating below as the eye recedes. The occiput is moderately prominent throughout its entire height but recedes at upper and lower eye corners. It bears abundant, fine pile on the lower half and quite weak, anteriorly curved bristles on the upper half. The proboscis extends little if any beyond the base and is quite obtuse at apex with a low, dorsal ridge. The palpus is clearly composed of two segments, the first segment excavated, the second of the same length, robust and a little narrowed at the apex, with apical pore and only with fine hairs. The antenna is attached below the upper third of the head; the first segment is twice as long as wide, the second segment is one and a half times as long as wide and widened distally. The third segment is narrowed slightly beyond the base and again at the apex; without microsegment it is 1½ times as long as the combined length of the first two segments. It bears a short, stout microsegment followed by a considerably longer, equally stout, apically narrowed microsegment with short, apical bristle; both microsegments are directed obliquely downward. First and second segments with short setae above, the first with long, bristly hairs below, the second with 2 long, slender bristles and 1 or 2 hairs ventrally.

Head, anterior aspect: The width of the head is about 1⅔ times the height of the head. The face below the antenna is one-fifth the width of the head and slightly wider below. It bears coarse, appressed pubescence and no pile but numerous, long, very slender bristles; and there are only 1 or 2 stout elements in the middle on the epistomal margin. Front distinctly wider than the face; the vertex is slightly narrowed, shallowly excavated with large, dorsally rounded ocellarium; its sides are vertical and bear 3 or 4 pairs of slender bristles between the ocelli and 1 or 2 pairs behind, all of them long. The front is sunken in the middle, pubescent with considerable long, bristly hairs.

Thorax: The thorax is short and moderately high, the mesonotum is pollinose, with a differentiated double row of acrostical setae and numerous, long, coarse setae laterally. Dorsocentral bristles begin just before the suture and form 4 long, moderately stout elements behind. Lateral bristles are rather stout and finely attenuate; there are 3 long notopleural in an oblique row, 4 above the wing, 3 long and 2 weak elements on the postalar callosity, and 3 pairs of stout bristles on the scutellar margin. The scutellum is not quite flat with deep basal crease, the surface coarsely appressed pubescent but no pile. The margin, however, is shining. Upper posterior corner of mesopleuron with a few short, bristly hairs, the dorsal margin with some stiff hairs. Pronotum with weak bristles. Metapleuron with a vertical band of numerous, long, slender bristles and bristly hairs. Postmetacoxal area membranous, the lateral and ventral metasternum has long pile. Prosternum fully dissociated.

Legs: All the femora are stout, polished, with abundant, coarse, appressed setae dorsally. Posterior femur with an erect fringe of ventromedial hairs containing also some longer hairs. Bristles are restricted to some 6 or 7 short, slender bristles dorsolaterally. Hind tibia narrow only at the base; and is stout and swollen beyond. It bears 5 moderately long, stout, lateral bristles, several small, short, dorsolateral basal elements, and 2 longer dorsomedial elements on the discal third. Hind basitarsus swollen, longer than the next two segments, which are also somewhat swollen. Middle femur with a weak, short bristle on each side subapically and dorsally. Middle tibia with 3 quite short and 2 rather long, stout anterodorsal bristles on the basal half but with 7 rather long, posterior or perhaps posteroventral bristles, and 2 equally long ventral bristles on the outer half. Anterior femur with some short, bristly hairs posteriorly; the tibia has 3 or 4 quite short bristles anterodorsally on the apical half and also 7 pale, posterior bristles similar in length to those on the middle tibia and neither group long. It also has 3 comparatively long, attenuate, posteroventral bristles. Apex without spine. Claws slender, bent chiefly at the apex and sharp; pulvillus long and narrow; and empodium short and stout.

Wings: The wings are slender, greyish hyaline with darker villi everywhere, except in the base of the basal cells and costal cells. Marginal cell widely open, the anterior branch of the third vein ends above the wing apex. All the posterior cells quite widely open, the anal cell narrowly open or closed in the margin. The anterior crossvein enters the discal cell at the middle, the posterior crossvein is short, the third vein forks opposite the end of the discal cell. Alula quite narrow, ambient vein complete. Second submarginal cell quite slender towards the base and also not wide apically.

Abdomen: The abdomen is moderately wide at the base and not quite as wide as the mesonotum. The second segment has a deep fossa. The abdomen is shining with scanty, appressed, fine setae and pollinose spots laterally and posteriorly on the tergites. Sides of the first segment with 4 or 5 long, quite slender bristles and some shorter pile. Males with eight tergites; the eighth, however, is only one-third as long as the seventh and the seventh half as long as the sixth. The male terminalia are quite small and short and partly rotate. The epandrium is exceptionally small and short and uncleft, with the small proctiger protruding beyond. The gonopod is prominent but short, the hypandrium short but quite broad.

Distribution: Palaearctic: *Lithoeciscus heydeni* Loew (1871).

Genus *Nannocyrtopogon* Wilcox and Martin

FIGURES 166, 489, 986

Nannocyrtopogon Wilcox and Martin, Ann. Ent. Soc. Amer., vol. 29, p. 449, 1936. Type of genus: *Cyrtopogon cerussatus* Osten Sacken, 1877, by original designation.

Small or very small flies of bare aspect with reduced pile, especially upon the abdomen. Separated from *Cyrtopogon* Loew by the bare scutellum which has short, stout, marginal bristles. The abdomen is cylindroid or slightly tapered, the posterior corners and anterior margins of the segments generally pollinose. The tibial bristles are strong and femoral bristles are weak. Length 5 to 12 mm.

Head, lateral aspect: The head of medium length, the face moderately prominent, strongly rounded and gibbous and rising from immediately beneath the antenna. The occiput is everywhere short but slightly more prominent below. The eyes are posteroventrally recessive beginning at the middle of the head. Occipital pile dense, long and fine below, with weak bristles beginning on the upper fourth, which are arranged in a broad, irregular patch behind the upper eye, containing as many as 4 rows; there may be a single, deep, postvertical bristle. Proboscis small, short, cylindrical, a little pointed at apex, not extending beyond the face. Palpus generally long and slender, with two segments, the first short and excavated, the second segment with scattered bristly hairs below and laterally. Antenna attached at the middle of the head, slender, nearly as long as the head, the first two segments subequal and a little swollen. The third segment at the base is not as wide as the second segment; it is there distinctly narrowed to be again expanded or dilated broadly over the outer third, and narrow at the apex. Two microsegments are present, the first short, the second long, attenuate, bent down and with a spine at the tip. Second segment ventrally with 1 long, conspicuous, stout bristle and sometimes 2 more slender ones.

Head, anterior aspect: The head is wide, flattened, the face wide and approximately two-fifths of the head width. Lower face and front each slightly wider than the upper face. Face coarsely pubescent with a few scattered, fine, long hairs and more abundant, very slender bristles beginning near the antenna and forming a widening triangular patch below. Oral margin without more strongly differentiated bristles. First antennal segment with 2 or 3 stout bristles or with fine pile only. Subepistomal area only moderate in size and distinctly horizontal. Front nearly flat, pollinose or pubescent and with numerous delicate hairs laterally. Vertex moderately excavated, the ocellarium exceptionally broad, rather low, the anterior ocellus vertical and bearing 2 or 3 pairs of bristles between the ocelli, a like number behind, and additional fine, long pile. Anterior eye facets moderately enlarged.

Thorax: The thorax is pollinose with rather scanty, fine bristly pile. There is a double acrostical row, a differentiated row of dorsocentral bristles, sometimes short, more often long and slender and becoming still longer posteriorly. Humerus with fine, abundant pile. The lateral complement of bristles is as follows: 2 to 3 notopleural, 2 strong and sometimes 2 weak supraalar, 2 postalar, and 2 to 6 pairs of scutellar bristles. Scutellar disc rather flat, pubescent, apilose, or more rarely with 2 or 3 slender bristles on each side near the base. Propleuron and cervical sclerites with dense, long, fine pile. Prosternum dissociated. Remainder of pleuron apilose; metapleuron with 6 to 15 long, slender bristles. Lateral and ventral metasternum with fine pile; postmetacoxal area membranous.

Legs: The femora are stout and a little swollen, especially through the middle; their pile varies from very short and flat appressed to species where it is so arranged only dorsally and the anterior and posterior margins have a considerable amount of longer, shaggy, subappressed pile. Femora with few bristles. Hind femur laterally and dorsolaterally near the apex with 3 to 5 bristles, and with 1 dorsomedial subapical bristle. Middle femur with 1 long, dorsolateral bristle at the outer fourth and generally 2 others near the apex. Anterior femur with a dorsal row of 5 to 8 bristles and a small transverse cluster of bristles anteriorly at the apex. All femora usually with a varying number of quite long, bristly hairs or slender bristles ventrally. Tibial bristles numerous and prominent. Hind tibia with 5 ventromedial bristles basally, 5 dorsomedial, 3 long, stout, lateral bristles, and 5 or 6 similar ventrolateral bristles. Middle tibia with the anterodorsal and posteroventral bristles exaggerated; 8 bristles in the former row and 6 in the latter row. There are 6 posterodorsal and 3 long, ventral bristles. Anterior tibia rather similar and in the males with the dorsal bristles on the discal half multiplied and long, slender, and conspicuous. This continues on to the male fore tarsus where the dorsal bristles are longer and conspicuous in some species. Protibial apex without spine. Claws, sharp; empodium swollen at the base; pulvilli well developed.

Wings: The wings are slender; marginal cell is widely open, fork of the third vein lies beyond the posterior crossvein. Anterior crossvein enters the wing at or just beyond the middle of the discal cell, or rarely just before the middle. All the posterior cells widely open. Anal cell open or narrowly closed. Alula short; ambient vein complete.

Abdomen: The abdomen is comparatively short and robust, slightly tapered; at the base nearly as wide as the mesonotum, quite bare in appearance, with short, scanty, appressed, setate pile and a few fine, more erect hairs along the sides of the first two tergites. Abdomen mostly shining or dull black with the posterior corners and the anterior margins pale pollinose. Males with seven tergites, the seventh sometimes only half as long as the sixth. The eighth may be present as a short lip or concealed beneath the seventh. Females with eight tergites, the last being short. Male terminalia not very large, the epandrium broad, with a short, apical, triangular cleft, which is filled by a membrane. Gonopod short, triangular, bluntly pointed at the apex. Hypandrium broad at the base, elongate and narrowed apically, the genital cavity exposed. Females with 4 or 5 pairs of short, stout, truncate spines on the acanthophorites.

Distribution: Nearctic: *Nannocyrtopogon antennatus* Wilcox and Martin (1957); *aristatus* James (1942); *arnaudi* Wilcox and Martin (1957); *atripes* Wilcox and Martin (1936); *bruneri* Wilcox and Martin (1957); *cerussatus* Osten Sacken (1877); *crumbi* Wilcox and Martin (1957); *deserti* Wilcox and Martin (1957); *howlandi* Wilcox and Martin (1957); *inyoi* Wilcox and Martin (1957); *irvinei* Wilcox and Martin (1957); *j-beameri* Wilcox and Martin (1957); *lestomyiformis* Wilcox and Martin (1936); *minusi* Wilcox and Martin (1957); *minutus* Wilcox and Martin (1936); *monrovia* Wilcox and Martin (1936); *neoculatus* Wilcox and Martin (1957); *nevadensis* Wilcox and Martin (1957); *nigricolor* Coquillett (1904); *nitidus* Wilcox and Martin (1957); *oculatus* Wilcox and Martin (1936); *richardsoni* Wilcox and Martin (1957); *sequoia* Wilcox and Martin (1957); *stonei* Wilcox and Martin (1957); *timberlakei* Wilcox and Martin (1957); *tolandi* Wilcox and Martin (1957); *vanduzeei* Wilcox and Martin (1936); *vandykei* Wilcox and Martin (1957).

Genus *Cycloscerus* Bezzi

FIGURES 139, 495, 973, 982, 1973, 2027

Cycloscerus Bezzi, Mem. Soc. Ent. Italiana, vol. 5, p. 60, 1926. Type of genus: *Cyrtopogon platycerus* Villeneuve, 1913, by original designation.

Small flies with prominent, rounded, dome-shaped face characteristic of *Cyrtopogon* Loew but with the abdomen extremely bare and reduced in pilosity and the pile generally reduced everywhere. The third antennal segment is compressed laterally and much expanded ventrally and the proboscis unusually short and stubby. Length 10–12 mm.

Head, lateral aspect: The head is unusually long, the face is unusually prominent from the antenna to the epistoma, rounded and dome-shaped, the eyes strongly recessive anteroventrally but the recession begins well above the middle of the head. The occiput grows in thickness and exposed area accordingly and is obliterated only near the vertex. Pile of occiput fine, moderately long and abundant only below; there are 9 pairs of weak, finely attenuate bristles dorsally. The proboscis is exceptionally short, thick, and stubby, with bluntly rounded apex not reduced in width. It does not extend out farther than the epistoma itself. There are a few minute hairs at the apex, a number of moderately long hairs at the base, and the medial ridge is well developed in the middle. It is directed nearly straight forward. Palpus clearly of two segments but short and stout; first segment excavated; second microporate, each with a few stiff hairs. The antenna is attached a little below the upper third, the first segment is unusually short and a little shorter than the second segment; the second segment is compressed laterally, beadlike, densely long pubescent, with a fuzzy appearance. The third segment, the microsegments excluded, is twice as long as the second segment; its greatest height is more than half its length and it is gently widened from the base to the middle and it is abruptly reduced in height beginning at the outer fourth. It bears an extremely short, ringlike microsegment to which is attached a second much longer, attenuate microsegment bearing a minute, apical, hyaline spine. First antennal segment ventrally at apex with 2 or 3 long, quite stout bristles. Third segment in the middle below with 3 such long, stout bristles and dorsally with 3 others nearly as long.

Head, anterior aspect: The face below antenna is one-third of the head width and rather strongly divergent below. Subepistomal area short and only slightly oblique, slightly concave, and pubescent. Face pubescent and, except for a triangular bare area on the upper lateral portion, densely covered with numerous, moderately long, weak bristles and with a few stiff hairs above and ventrally along the eye margin. The pile and bristles do not quite reach to the antenna and for the most part are curled obliquely downward. The front is rather strongly divergent, the vertex very slightly narrowed and shallowly excavated. The sides of the front bear numerous, long, erect, stiff hairs and 4 or 5 quite weak bristles. Ocellar protuberance small, the ocelli not large and bearing 4 or 5 pairs of short, stiff hairs. Eye facets enlarged centrally and with lateral, depressed, hexagonal margins.

Thorax: The thorax is densely covered with fine micropubescence including the pleuron. The mesonotal pile is stiff, erect, moderately long and abundant. There is acrostical, dorsocentral, and humeral pile present. The lateral bristles are moderately stiff and long and consist of 2 notopleural, 2 supraalar, 4 postalar, and 4 pairs of weak, long scutellar bristles. Scutellum convex, with a number of fine, scattered, erect hairs. Propleuron with fine, slender, abundant hair on the collar posteriorly and more densely on the lateral element. There are a few long, stiff hairs dorsally on the mesopleuron, more abundantly on the posterior portion and there is fine, long pile on the upper sternopleuron. Pteropleuron and hypopleuron without pile, metapleuron with numerous, long fine hairs and 4 weak bristles. Metanotal slopes bullose, micropubescent only; slopes of metasternum with long pile, the ventral metasternum with much long pile; postmetacoxal area membranous; tegula pubescent only.

Legs: The femora are stout without being greatly thickened. The hind femur bears dense, short, appressed setae above and rather long, scattered, fine, erect pile laterally and below with a fringe of especially long ventromedial hairs. It bears a tranverse cluster of 9 bristles dorsally near the apex, and immediately behind are 2 dorsolateral and 2 or 3 dorsomedial bristles. This tibia bears moderately long, finely attenuate, strongly curved bristles consisting of 9 dorsal, 6 medial, 5 middorsal, 3 or 4 dorsolateral, 4 lateral, and 4 stout ventral bristles. The apex bears 3 medial, 3 dorsal, 3 lateral, and 4 ventral bristles. The middle femur has 9 anterior and 2 posterior bristles at the apex; its tibial bristles are strongly appressed and consist of 7 long, curved anterodorsal, 5 posterodorsal, 6 posterior, 4 or 5 ventral, and 5 anterior bristles; apex with 12 long bristles. Anterior femur with 2 or 3 weak bristles anteriorly near the apex; its tibia with a double row of dorsal bristles, each row containing 8 or 9 elements, and a double row of posterior ones, each containing about 7 especially stout, long bristles. No apical spine present; all tarsi end in long pulvilli, basally thickened empodium, and sharp claws.

Wings: The wings are of normal length, marginal cell widely open; anterior branch of third vein ends before the wing apex; fourth posterior cell open; but slightly narrowed. Anal cell widely open; second basal cell ends in 3 veins; alula large; ambient vein complete.

Abdomen: The abdomen is robust as far as the end of the fourth tergite, as long as the wings. Pile of abdomen very scanty, quite short, fine setate except along the sides of the first three tergites where it is long, erect and fine; bristles absent. First sternite reduced to a narrow strip of chitin posteriorly, nearly but not quite full width laterally. Sternal pile fine and long on the basal sternites; absent on the first sternite. Female with eight tergites, the eighth reduced to one-third the length of the seventh. Female terminalia with stout spines; lateral process with some fine, spinous setae.

Distribution: Palaearctic: *Cycloscerus platycerus* Villeneuve (1913).

Genus *Holopogon* Loew

FIGURES 127, 493, 1033, 1042

Podoctria Megerle (Ms.), *in* Meigen, Systematische Beschreibung der . . . zweiflügligen Insekten, vol. 2, p. 279, 1820. Name without characterization.

Holopogon Loew, Linnaea entomologica, vol. 2, p. 473, 1847. Type of genus: *Dasypogon nigripennis* Meigen, 1820. Designated by Coquillett, 1910, the third of seven species.

Ceraturgus Rondani, not Wiedemann, Dipterologiae italicae prodromus, vol. 1, p. 156, 1856.

Holopogon has 1 subgenus, *Dasyholopogon* Martin.

Quite small flies characterized by the short face, the generally divergent front with strong, numerous bristles and rather long, loose pile. The mesonotum is often high, giving these flies a hump-backed appearance. They may be generally recognized by the hind metatarsus, which is strongly enlarged, with the remaining segments decreasing in thickness; the corresponding tibia is gradually swollen towards the apex. In the type of genus the face is densely long, fine pilose over the whole surface, the narrow ocular margins excepted, and with fine, bristly hairs over the oral margin. In others the pile is greatly reduced and often replaced by a few slender bristles. Length 4.5 to 9 mm.

Head, lateral aspect: The face is short, gently convex and retreating below the middle. The eye is equally developed above and below, of moderate length and strongly convex anteriorly, and gently convex posteriorly. Occiput moderately developed but shorter ventrally and dorsally; from a dorsal view the upper posterior corners of the eye are broadly rounded and anterolaterally recessive; in some instances this recession is quite marked. Pile of occiput scanty except on the lower half, where it is longer and more abundant; upper half with numerous, slender bristles which become longer, a little stouter and distinct behind the vertex. The proboscis is short, subcylindrical and obtuse, extending barely beyond the face and directed either forward or obliquely downward; it bears fine, short pile at the rounded obtuse apex. The base is not swollen, the medial ridge absent and a narrow ventral fissure present only on the basal fourth. Palpus of two segments, each short and minute; first segment excavated, second segment microporate with an apical bristle. The antenna is attached just above the middle of the head in profile; it is elongate and slender, the first segment a little longer than the second, the second slightly longer than high, dilated distally. The third segment is a little more narrow than the second, widest basally, tapering gently towards the apex and bearing two microsegments; the first microsegment is short, the second thick but strongly attenuate, with a short apical, bristly spine; these microsegments are usually held at an oblique angle directed downward. Total length of third segment 1½ to 2 times as long as the combined length of the first two segments. Pile of first and second segments exceptionally long ventrally, composed of very slender bristles or stiff, bristly pile; sometimes the second segment in the middle below has a stout, exceptionally long bristle.

Head, anterior aspect: The face below antenna is less than one-fourth the head width and divergent below; the front is divergent to nearly one-third the head width. Subepistomal area small, short, nearly horizontal, concave and pubescent. Face densely pubescent, in the type of genus with dense, long, bristly pile from immediately below the antenna to the epistomal margin, leaving only the sides narrowly apilose. In many species the pile is greatly reduced and very scanty on the upper half of the face, with or without scattered bristles replacing the pile; generally there are a few, moderately stout bristles laterally along the subepistoma. Front pubescent, distinctly divergent and sometimes rather strongly widened, with abundant, long pile laterally; the vertex is moderately excavated and the high prominent ocellarium has vertical sides carrying 2 or 3 pairs of long, slender hairs and sometimes shorter pile. Anterior ocellus set at the bottom of the tubercle. Eye facets strongly enlarged centrally.

Thorax: The thorax is pollinose. In many species the mesonotum presents a rather distinctly hump-backed appearance. Pile of mesonotum is rather loose and scattered but long and fine and largely erect; in some species it is replaced by scattered, bristly pile. There may be a band of acrostical pile present or dorsocentral hairs differentiated, beginning near the suture. In the type of genus the lateral bristles are extremely weak, or absent, scarcely more than stiff hairs; there are 1 or 2 on the notopleuron but on the supraalar region and postalar region only stiff pile. Humerus usually with long, delicate pile. In *Holopogon dejectus*, *pulcher*, and *violaceous*, which are Neotropical species, there are strong, stout, long, lateral bristles consisting of 1 or 2 humeral, 2 or 3 notopleural, 1 or 2 postalar, and 3 to 6 scutellar bristles that are marginal. Scutellum bare or micropubescent or with long pile;

it is rather thin but convex. Propleuron and mesopleuron with long, fine pile; metapleuron with a vertical band of long, delicate, crinkled pile. Hypopleuron with a few, long, fine hairs; pteropleuron apilose. Metanotal slopes micropubescent only; lateral metasternum and the ventral metasternum with long, fine pile; postmetacoxal area membranous. Prosternum dissociated.

Legs: The femora are stout without being swollen; the tibiae and tarsi rather slender and weak, except the hind pair. Bristles are rather poorly developed in the type of genus but are apt to be long and slender, a little thickened toward the base, attenuate apically and more or less oblique. They are especially long posteriorly and posteroventrally on the tibiae. Anterior tibia without spine. In some species the dorsal pile of the femora is fine, flat appressed and setate, and there may be 2 moderately stout bristles dorsally and subapically, 2 much finer, shorter ones at the apex; ventrally the femora may have a very scanty fringe of fine, erect pile of some 25 hairs and on the basal half ventrally 3 long, slender, bristly hairs. The legs sometimes show well developed bristles. A typical complement consists of: posterior tibia with 5 stout dorsal, 4 even longer, stout lateral and 3 long, stout ventral bristles, the latter found chiefly on the distal half; middle tibia with 4 short dorsal, 3 long, stout, anterior bristles but with 7 much more slender posterior and 3 long, slender ventral bristles; anterior femur without bristles and its tibia with 5 to 7 short, and weak, dorsal bristles. The posterior bristles long and slender. All tarsi end in short, sharp claws, well developed pulvilli and rather short, basally swollen empodium.

Wings: The marginal cell is widely open; anterior branch of the third vein ends at the wing apex; posterior branch shortly behind. All the posterior cells widely open; anal cell closed in the type of genus with a short stalk, but widely open in many species. The anterior crossvein enters the discal cell at or just beyond the basal third. Alula relatively narrow; ambient vein complete.

Abdomen: The abdomen is usually slightly more narrow than the mesonotum and with nearly parallel sides or gently tapering sides, the tergites rather convex. The pile is rather short, fine and subappressed across the middles of the tergites, becoming distinctly longer and more prominent laterally, and often quite long and prominent on the sides of the first 3 tergites. The sternites characteristically have long, dense, shaggy pile. Male with eight tergites, the eighth one-half as long as the seventh; female with eight tergites, the seventh and eighth each reduced to about two-thirds of the length of the sixth. Male terminalia rather short and partly rotate. The epandrium is not cleft or notched but is very broad. The gonopod bears a characteristic apical, inwardly curved, slender arm with bristles on its tip; it appears to be largely fused dorsally to the epandrium but also has an anterior, dorsal, upwardly thrust, slender process. Hypandrium short and obtuse and distinct. Female terminalia with 4 or 5 pairs of minute, short, inconspicuous, apically rounded spines.

Holopogon has a pattern of distribution very similar to that of *Heteropogon* Loew and *Cyrtopogon* Loew. There are more species in Europe than in North America.

Distribution: Nearctic: *Holopogan albipilosus* Curran (1923); *?appendiculatus* Bigot (1878); *atrifrons* Cole (1924); *atripennis* Back (1909); *guttula* Wiedemann (1821) [=*philadelphicus* Schiner (1867)]; *nitidiventris* Bigot (1878); *phaeonotus* Loew (1874); *seniculus* Loew (1866); *snowi* Back (1909); *tibialis* Curran (1923).

Neotropical: *Holopogon bullatus* Wulp (1882); *dejectus* Williston (1901); *pulcher* Williston (1901); *tener* Bigot (1878); *violaceus* Williston (1901).

Palaearctic: *Holopogon albosetosus* Schiner (1867) [=*digrammus* Loew (1871)]; *auribarbis* Meigen (1820); *binotatus* Loew (1870); *brunnipes* Meigen (1820) [=*pallipes* Megerle (Ms.) in Meigen (1820)]; *claripennis* Loew (1856); *dichromatopus* Bezzi (1926); *dimidiata* Meigen (1820) [=*dimidipennis* Megerle (MS.) in Meigen, *fuscipennis* Meigen (1820), *timidus* Loew (1847)]; *dusmetii* Strobl in Czerny and Strobl (1909); *flavescens* Jaennicke (1867); *flavotibialis* Strobl (1909); *fumipennis* Meigen (1820) [=*albipilus* Meigen (1820)]; *imbecillus* Loew (1870); *melaleucus* Meigen (1820); *melas* Dufour (1850); *nigrifacies* Bezzi (1900) [=*fumipennis* Bezzi (1899) not Meigen]; *nigripennis* Meigen (1820) [=*?minutus* Schrank (1803)], *nigripennis nobilis* Loew male (1869); *nitidus* Macquart (1849); *priscus* Meigen (1820) [=*claviger* Loew (1871), *clavipes* Loew (1840), *hyalipennis* Megerle (MS.) in Meigen, *laniger* Zetterstedt (1840) not Meigen]; *pusillus* Macquart (1838); *rugiventris* Strobl (1906); *siculus* Macquart (1834); *strandi* Duda (1940); *venustus* Peter Rossi (1790) [=*iris* Meigen (1804), *minutus* Fabricius (1794)].

Ethiopian: *Holopogon fugax* Loew (1860).

Frauenfield (1866), Brauer (1883), Mik (1885) treat immature stages of *Holopogon fumipennis* and *nigripennis*.

Subgenus *Dasyholopogon* Martin

Dasyholopogon Martin, Amer. Mus. Nov., no. 1980, p. 34, 1959.
Type of subgenus: *Holopogon umbrinus* Back, 1909, by original designation.

The following description is from Martin:

> In general, the three species placed in this subgenus are more shaggy in appearance than most specimens of *Holopogon*. Also, the lack of bristles laterally before the transverse suture on the thorax and the long, dense hair on the ventral surfaces of the posterior abdominal sternites separate the subgenus *Dasyholopogon* from *Holopogon*. The male genitalia closely resemble those of *Holopogon*, so that beyond doubt *Dasypholopogon* is very closely related. The species belonging to *Dasyholopogon* are found in California, Oregon, and Idaho.

Distribution: Nearctic: *Dasyholopogon caesariatus* Martin (1959); *crinitus* Martin (1959); *umbrinus* Back (1909).

Genus *Hadrokolos* Martin

Hadrokolos Martin, Amer. Mus. Nov., no. 1980, p. 3, 1959. Type of genus: *Holopogon texanus* Bromley, 1934, by original designation.

The following description is from Martin:

> The genus *Hadrokolos* is erected to receive three species of asilids belonging to the subfamily Dasypogoninae that are related to the genus *Holopogon* Loew. In general, the known species of *Hadrokolos* are more bristly and the hair is more sparse and shorter than is the case with the species of *Holopogon*. The diameter of the femora is greater than the largest diameter of the tibiae, which is generally not true of *Holopogon*, in which the tibiae have the greatest diameter.
>
> In *Hadrokolos* the oral margin has a clump of bristles medially and a few longer bristles laterally, and also bristles are above the clump; dorsally the thorax bears at least posteriorly and sometimes anteriorly strong dorsocentral bristles, also the postalar bristles are strong and long; the scutellum bears two or more strong, long, marginal bristles: the lateral margins of the abdominal tergites have very sparse, short hair; the anal cell is very narrowly to broadly open in the margin of the wing; abdominal segments 7 and 8 both rotate approximately 40 degrees or more from the longitudinal axis of the body so that the two broad, long, ellipsoidal claspers of the male genitalia hang ventrad, with the posterior margins curving anteriorad. In *Holopogon* there is a similar turning of segments 7 and 8, but the claspers are greatly reduced in length.

Distribution: Nearctic: *Hadrokolos cazieri* Martin (1959); *pritchardi* Martin (1959); *texanus* Bromley (1934).

Genus *Pseudoholopogon* Strobl

FIGURES 132, 465, 1053, 1062, 1591, 1876

Pseudoholopogon Strobl, Weiner Ent. Zeitung, vol. 17, p. 298, 1898. Type of genus: *Dioctria chalcogaster* Dufour, 1850, by original designation.

Small flies characterized by the extremely stout hind tibia and tarsus, the broad wings, and the slender antenna that has two wide, compressed microsegments, together with a third, small, dorsal, spine-bearing microsegment. This last microsegment has a conspicuous, dorsal, bristly spine. Middle of the face with very long, abundant, bristly pile. This genus is separated from *Holopogon* Loew by the form of the antenna. The massively thickened hind tibia and tarsus represent only an exaggeration of *Holopogon* tendencies. Length 9 or 10 mm.

Head, lateral aspect: The head is not developed below the eyes. The head is rather long, most of it incorporated in the eye which is long; the eye is also very strongly convex anteriorly, gently convex behind, and equally developed above and below. Face short, gently convex, slightly more extensive on the lower half than dorsally. The occiput is thick and well developed, especially medially; it slopes gently down to the eye margins dorsally and ventrally. Pile of the occiput long and fine and abundant ventrally and crinkled; the dorsal portion of the occiput bears numerous, quite slender bristly hairs; 2 or 3 of these elements behind the vertex are stout and most of them proclinate. The proboscis is short, subcylindrical, slightly swollen towards the base; the apex is truncate in a slightly oblique, dorsoapical direction. The immediate apex of the proboscis and the ventral apical portion on the outer fourth both bear a number of fine, bristly hairs; basal half of the ventral surface with numerous, long, stiff, divergent hairs. The proboscis is scarcely longer than the face and is directed almost horizontally forward. Palpus quite small; clearly of two segments; both segments short, the first excavated, the second microporate and with only 2 or 3 bristly hairs subapically and below. Second segment shorter than the first, attached at an oblique angle and directed upward.

The antenna is attached at the upper fourth of the head, long and slender, the first two segments approximately equal in length. The third segment is laterally compressed, as long as the first two combined and carries two laterally compressed microsegments, each nearly as wide as the apex of the third segment and each slightly convex dorsally and ventrally and each approximately as long as wide. Second microsegment with an additional conspicuous, dorsoapical, short, spine-bearing microsegment, making a total of three microsegments. This third microsegment is swollen and cylindroid and the spine is apical. The first segment of the antenna has 6 to 8 unusually long, slender, bristly hairs. Second segment with 2 long, stiff bristles ventrally and 2 shorter, more slender bristles dorsally.

Head, anterior aspect: The face below antenna about one-fourth the head width and divergent below. The front is as wide as the lower face. Subepistomal area small, concave and nearly or quite horizontal. The face is coarsely pubescent, bearing dense, long, quite slender bristles down the entire length of the middle half of the face, leaving the lateral fourth on each side without bristles, except opposite the epistomal margin, where the bristles extend to the eyes. There are no stout bristles present. The front is rather long, due in part to the posterior position of the ocelli. It is thinly pollinose, with a wide, lateral band of abundant, long, bristly pile which anteriorly extends inward as far as the outer margin of the antenna. The front is moderately divergent and not convergent at the vertex. Vertex moderately excavated, the ocellarium large, set opposite the upper posterior corners of the eyes; its sides are vertical and it bears between the ocelli 3 or 4 pairs of long, slender, bristly hairs, with 2 or 3 additional hairs behind the ocelli. Anterior eye facets considerably enlarged.

Thorax: The pleuron is very thinly appressed micropubescent. Pile of mesonotum is long and quite fine, of bristly character but scanty in quantity, much of the mesonotum is shining and not pubescent. There are a few fine, long, acrostical hairs anteriorly and similar dorsocentral elements poorly differentiated anteriorly but becoming longer before the scutellum. Humerus with a few fine, long, backwardly curled hairs. The following complement of quite slender, weak, mostly short, lateral bristles present: notopleuron with 1 long, moderately stout bristle and 1 fine, stiff, short hair; postalar with several short, stiff hairs. Scutellar margin with 3 or 4 pairs of exceptionally fine, long hairs. Scutellum convex, moderately thick, the disc apparently without pile or pubescence, except for a few very fine, scattered hairs laterally. Propleuron with a dense tuft of fine, quite long, crinkled pile ventrally and laterally but only short, fine hair dorsally on the collar. Sternopleuron with similar pile; long, abundant pile present posterodorsally on the mesopleuron; pteropleuron apilose, the hypopleuron with a few scattered, long hairs. Metapleuron with a vertical band of exceptionally long, crinkled pile which becomes stiff and bristly towards the base.

Legs: The anterior and middle femora are slender; the hind femur is stout, its tibia is enormously swollen distally, but with the base slender. The hind basitarsus is also enormously swollen, the remaining segments progressively smaller. Dorsal pile of the femora short, appressed and setate. The following bristles are present in the type of genus: the ventrolateral margin of the hind femur with 8 to 10 bristly hairs, ventromedial margin likewise with some slender, bristly hairs. Hind tibia with 7 moderately long, slender, dorsomedial bristles and 5 or 6 somewhat shorter dorsolateral bristles; the lower half of the lateral surface and the ventral and medial surfaces have dense, appressed setae; the apex bears numerous fine bristles, 1 dorsomedial, 3 or 4 medial, 1 dorsolateral, 2 lateral, and 6 ventral. Middle femur with long, fine, stiff hair ventrally. Middle tibia with long, basally stout, oblique, finely pointed bristles, of which there are 5 anterodorsol, 3 ventral, inclined anteriorly, and 12 to 14 long, pale, posterior bristles; the dorsal surface with a few, the ventral surface with more numerous, erect, stiff hairs. Anterior femur with only long, fine hairs ventrally. The anterior tibial bristles dorsally are quite fine, short and weak; there are 7 or 8 anterodorsal and approximately a like number of posterodorsal, with a posterior row of 4 or 5 slender bristles and 3 longer ventral bristles. Apex without spine and with 10 to 12 comparatively short bristles. All the anterior 4 tarsi are slender, the basitarsus not quite as long as the succeeding 3 segments. Tarsi end in slender, sharp claws, long pulvilli, and a short empodium strongly swollen at the base.

Wings: The wings are broad; the marginal cell is widely open; the anterior branch of the third vein ends at the wing apex; the second submarginal cell is slender, gradually though only moderately widened apically and but little widened anteriorly at its base. First posterior cell widely open, the fourth only slightly narrowed; anal cell closed with a short stalk; middle end vein of the second basal cell extremely short, the anterior crossvein enters the discal cell at the middle. The alula is short; ambient vein complete.

Abdomen: The abdomen is comparatively wide and distinctly flattened especially on the first three or four tergites. Basally it is at least as wide as the mesonotum or a little wider and tapers very slightly to the end of the fifth tergite and somewhat more rapidly beyond. Sides of the tergites rather strongly though narrowly rolled. Eight tergites are present, the seventh is three-fourths as long as the sixth but the eighth is extremely short. Pile of the abdomen scanty, more or less appressed and rather short except along the lateral margins where it is strikingly dense, long, bushy and crinkled, continuing down over the rolled portions of the tergites as a conspicuous, dense, ventral fringe. First sternite without pile, the remaining sternites with a few long, fine hairs.

Distribution: Palaearctic: *Pseudoholopogon chalcogaster* Dufour (1850).

Genus *Eriopogon* Loew

FIGURES 91, 497, 1005, 1006, 1937

Eriopogon Loew, Linnaea Entomologica, vol. 2, p. 487, 1847. Type of genus: *Dasypogon laniger* Meigen, 1804, by monotypy.

Small flies distinguished by the open posterior cells and the very dense, delicate, long, white pile present over the head, thorax, legs and the sides of the abdomen. Distinguished from *Jothopogon* Becker, which it nearly resembles, by the laterally compressed abdomen, the dense, long, discal pile of the scutellum and a short hypopygium, scarcely longer than the last segment. Hind coxa with a conical process. Length 10 to 11 mm.

Head, lateral aspect: The face is comparatively short, gently convex, with a slight elevation beginning immediately beneath the antenna. Lower face recessive, the whole profile very well hidden by dense, long, bristly pile. The eye is of moderate length, strongly convex anteriorly except in the middle where it tends to be flattened, nearly plane posteriorly, except at the immediate vertex; on the lower fifth it is strongly anteroventrally recessive. Occiput thick, especially medially, and particularly on the lower portion with dense tufted or matted, long, fine pile which extends outward to within a short distance of the eye margin and is present throughout the length of the occiput; bristles absent. The proboscis is short, laterally compressed, and rather high, with nearly parallel sides laterally, slightly tapered dorsally; the apex is bluntly rounded, a little more so on the dorsal aspect, and a low medial ridge is present. The apex bears a few stiff hairs continued ventrally over the outer third; the basal third bears numerous, long, fine hairs. Proboscis directed horizontally forward and extending a short distance beyond the face. Palpus minute, the first segment excavated, the second short and robust, a little attenuate towards the apex and with a number of fine, long hairs on all sides except medially. Antenna attached at the upper fourth of the head; the first two segments are comparatively short; the first is robust, convex dorsally and especially ventrally and bears numerous long, bristly hairs ventrally and laterally; second segment with 2 equally long bristly hairs ventrolaterally and 3 shorter setate hairs dorsally. Third segment elongate, narrowed subbasally and gradually expanded until on the outer third it is distinctly wider than the basal portion; this segment is at least twice as long as the combined length of the first two segments and bears at its apex a long, slender, finely attenuate style. There is no basal microsegment present.

Head, anterior aspect: The head does not descend beneath the eye. Face below the antenna less than one-third the head width and divergent below. The front is expanded and the width at vertex is two-fifths the head width. Subepistomal area of medium size, nearly horizontal, pubescent, concave, but short. Face thinly pubescent along the sides, more or less bare in the middle and densely covered from antenna to the epistoma with matted, long, fine, bristly hair which tends to be curled downward, leaves a portion of the lateral margin dorsally apilose but ventrally extending gradually to the margin. Front short, bare, with a minute line of pubescence along the eye and with a dense tuft of long, bandlike, slender pile set more or less obliquely on the lateral third. Vertex moderately excavated, very wide, due to the expanding front with the slopes of the vertex low; the ocellarium is large, of moderate height, the ocelli large and bearing between the ocelli 10 to 14 long, fine hairs. Sides of vertex with similar pile which is nearly as long as the antenna. Anterior eye facets strongly enlarged.

Thorax: The thorax is mostly shining, with patches of exceedingly fine pollenlike pubescence on the mesopleuron, pteropleuron, the lower sternopleuron, and above the wing. The mesonotum is rather high, equally convex and abrupt anteriorly and posteriorly. Pile of mesonotum exceptionally dense, long, and fine but not obscuring the ground color. It is perhaps more dense on the medial third with a narrow parting between the middle. Dorsocentral bristles not differentiated. Humerus apparently without pile or at most with 1 or 2 hairs although the surrounding areas are copiously pilose. The following long, stout, microtuberculate bristles are present laterally: 3 notopleural, 3 or 4 supraalar, 4 or more postalar bristles; the whole surface of the scutellum very densely covered, except in the extreme lateral corners, with remarkably long, fine, bristly pile; the basal elements interlacing with the similar pile on the prescutellar area. Postalar region with other long bristly hairs besides the bristles. Propleuron with numerous, long, fine hairs and no bristles. Upper posterodorsal half of the mesopleuron with a large patch of long, fine pile. Anterior and dorsomedial sternopleuron and the hypopleuron with a patch of numerous, long hairs. Metapleuron convex with a large, oval band of numerous, long, bristly hairs. Lateral slopes of the metanotum pubescent only, medial metanotum bare, lateral metasternum with long pile posteriorly, similar abundant pile on the narrow, convex, arched and chitinized ventral metasternum. Postmetacoxal area membranous: tegula with some setae.

Legs: The legs are stout without being swollen; the anterior and middle legs of nearly equal length, the hind leg a little longer. All of the femora bear dense, shaggy, long, fine, somewhat matted pile; tibial pile shorter but longer than usual. Femora with few bristles; on the middle femur are 3 moderately stout, short posterolateral and subapical bristles, 1 additional bristle near the middle, and a pair of dorsal bristles nearer the apex; also 1 anterodorsal subapical bristle. On the hind femur are 6 well developed lateral bristles. On the tibiae the bristles are better developed. The hind tibia has 4 long and 4 short posteromedial, 4 long posterolateral bristles. Middle tibia with 6 long and conspicuous anterodorsal, and with some long posterior bristly hairs. Anterior tibia with 7 or 8 posterodorsal, 5 or 6 shorter anterodorsal and 4 or 5 posterior bristles. Apex without spine. Tarsi end in sharp, strongly arched claws, long pulvilli and short, basally swollen empodium.

Wings: The marginal cell is widely open, subcostal cell reduced distally; all the posterior cells widely open, anal cell closed with a short stalk; second basal cell ends in 3 veins, the middle vein quite short; alula not as wide as the costal cell, costal cell rather expanded on the basal half. Ambient vein complete. The anterior crossvein enters the discal cell at the middle. Wings hyaline and not villose.

Abdomen: The abdomen is rather strongly compressed laterally, comparatively short, nearly or quite as wide at the base of the first tergite as the mesonotum. Female with eight tergites, eighth tergite slanted downward. a little shorter than the seventh, which in turn is a little shorter than the sixth. The pile of the abdomen is fine, but comparatively short dorsally; ventrolaterally it becomes very long and fine, and on the sternites becomes like tufts of cotton fiber. Female terminalia with 4 or 5 pairs of short, spatulate, spoonlike spines on either side. Laterally below these spines there are some slender, quite fine, bristly hairs. Last sternite short and poorly developed, recessive.

Distribution: Palaearctic: *Eriopogon jubatus* Becker (1906); *laniger* Meigen (1804).

Genus *Jothopogon* Becker

FIGURES 72, 498, 1009, 1010, 1719, 1946

Jothopogon Becker, *in* Becker and Stein, Ann. Mus. Zool. Acad. Imp. Sci. St. Pétersbourg, vol. 17, p. 518, 1913. Type of genus: *Cyrtopogon leucomallus* Loew, 1870, by original designation.

Small, densely white pilose flies. Related to *Eriopogon* Loew. They are distinguished by the cylindrical abdomen, the larger form of the male terminalia and the absence of the conical process on the hind coxa which is found in *Eriopogon*. Length 8 to 11 mm.

Head, lateral aspect: Face evenly convex and rounded and only slightly produced forward in profile. Occiput moderately developed except near vertex where it is obliterated. Pile of occiput quite long, dense and white and fine; at the vertex there are 10 to 12 moderately long hairs which are stiffer than those of the face. The proboscis is short, directed forward, cylindrical, bluntly pointed and has a conspicuous, high ridge. Palpus of two segments. The antenna is set at the upper third of the head. The first two segments are rather stout, equal in length, both with numerous, long hairs below, more upon the first segment and some shorter pile dorsally. The third segment, excluding style, is very little longer than the first two segments together, including style and terminal bristle it is not quite twice as long. The style has a minute, basal segment, is of uniform width, except close to the apex, where it rapidly draws to a point, and the whole style is about two-thirds the length of the third segment. The third segment is as wide as the second on its basal three-fourths then gently narrowed.

Head, anterior aspect: Face and front relatively narrow, each with slight and nearly equal divergence below and above. Face covered throughout with dense, long, fine, abundant pile, longer on the lower half where it is almost as long as the antenna. The face below the antenna is about one-fourth the head width. Front with only a few short, fine hairs. Excavation of vertex deep and abrupt, the ocelli raised on a vertical, conspicuous protuberance of the vertex. Anterior central eye facets strongly enlarged.

Thorax: The thorax is convex, similar to *Eriopogon* Loew; everywhere with long, abundant, fine pile which is especially dense and long on postalar and postmesonotal regions. The convex scutellum has 3 or 4 pairs of fine, long bristles on margin, the surface bare. Propleuron, middle sternopleuron and upper posteromesopleuron, anterior hypopleuron and the convex, almost protuberant metapleuron with dense, tufts of long, fine pile; the whole metapleuron is covered; posthypopleuron and pteropleuron bare.

Legs: The legs are densely covered with long, fine, white pile. The femora are slightly thickened. The hind femur has 5 short bristles laterally on the outer three-fifths. Middle femur with 2 dorsoapical and 4 anteroapical bristles, and the anterior femur with none. Posterior tibia with 5 quite long, stout, anterolateral bristles, evenly spaced; it ends in 2 medial, 4 ventral, and 2 lateral bristles. Middle tibia with 4 or 5 long, strong, anterior and 4 posterior bristles; it ends in 2 ventral and 1 short anterior bristle. Anterior tibia with 4 or 5 anterior and 4 posterior bristles. Anterior tibia without spine. Tarsi end in fine empodium and well developed pulvilli. The ventral surface of the hind tarsi in the right aspect shows blunt, protuberant, black tubercles.

Wings: The marginal cell is widely open. All posterior cells are widely open except the fourth which is slightly narrowed; anterior crossvein at the middle of the discal cell. Anal cell closed in the margin. Alula well developed; ambient vein complete.

Abdomen: The abdomen is densely long, fine pilose on tergites, even more so on sternites. Eight segments are visible, the last quite short. Abdomen obtuse, cylindroid in form and obtuse at apex. Tergites quite convex, sternum recessed and concealed. Male terminalia only moderately protuberant, covered with long, obscuring pile. Female terminalia with 5 pairs of dorsal spines.

Distribution: Palaearctic: *Jothopogon leucomallus* Loew (1870).

Harpagobroma, new genus

FIGURES 103, 500, 970, 979, 1789, 1859, 1883, 1886

Type of genus: *Harpagobroma fumosa*, new species.

Small flies with plane face and exceptionally stout occipital bristles which extend down nearly to the lower eye corners; mystax stout, in one row but with a few bristly hairs situated above. Ventral bristles of first two antennal segments prominent; third segment with a stout microsegment. All posterior cells and the anal cell widely open. Length 10 mm.

Head, lateral aspect: Head of moderate length. Face short, distinctly plane and vertical, more prominent below only because of the recession of the eye. The occiput is everywhere quite prominent, especially above and behind the vertex. Its pile is scanty and scattered, consisting of bristly hairs below and distinct bristles which begin near the middle of the head and constitute a single row. The proboscis is only moderately stout, tapered from the middle to a sharp, apical point; the apex bears a few stiff hairs and more of them along the apical ventral margin. The ventral basal half bears 3 or 4 long hairs on each side; the dorsomedial ridge is low and inconspicuous and quickly disappears apically. Palpus of 2 segments, the first excavated, the second slender, not long, with the apex narrowed and bearing a pore. Each segment with some scattered, bristly hairs which on the second segment stop at the middle and do not reach the apex. The antenna comparatively slender and a little longer than the head. The first two segments are robust, the first barely longer than the second, both with 3 or 4 bristles ventrolaterally and 5 or 6 long setae dorsally. Third segment of uniform thickness except at base and at apex, where it is for a short distance narrowed; it bears a single stout microsegment with small apical spine.

Head, anterior aspect: Face below antenna less than one-fourth the head width, barely divergent below. The face bears a single row of long, conspicuous, stout bristles along the epistomal margin, slanting obliquely downward. Also above on the lower half of the face there is a subtriangular, medial group of 12 fine, stiff bristles or bristly hairs; otherwise the face is micropubescent. Front barely wider than upper face, convergent again at the vertex. The front bears a subocular row of 5 long, slender hairs. Vertex moderately excavated, the ocellarium large and protuberant but not high, its sides rounded; it bears behind the ocelli 3 pairs of quite stout, long, erect, divergent bristles; ocelli quite large and visible in profile.

Thorax: The mesonotum rather convex anteriorly with a single, fine, scanty row of suberect acrostical elements; there is also a wide, bare stripe on either side and longer, fine, dorsocentral hairs; 1 or 2 posterior pairs of the dorsocentral elements are rather long. All lateral bristles are light brownish red and consist of 1 notopleural, 1 posterior, 1 supraalar, 1 postalar, and no scutellar bristles. The disc has only golden pubescence, the margin with a pair of short, delicate hairs. Metanotal slopes micropubescent only; pleuron everywhere brownish golden pubescent. Metapleuron with an oblique row of 7 moderately long, curved bristles. Pronotum with 2 or 3 pairs of weak, reddish bristles. There is no pile on the mesopleuron, sternopleuron, pteropleuron, or hypopleuron. Lateral metasternum with 5 or 6 long hairs; postmetacoxal area membranous.

Legs: The hind femur elongate, rather slender on the basal two-thirds and slightly thickened towards the apex; it bears scanty, short, appressed, brownish yellow pile and short but rather strong bristles. The leg bristles consist of a lateral row of 3 from the middle outward, 1 medially near the apex and a dorsal pair close to the apex; ventrally there are no bristles and almost no pile, only 3 or 4 minute hairs. Hind tibia slender but somewhat expanded near the apex, with quite short, appressed, reddish yellow pile and with rather longer stout bristles, 1 lateral at the apical fourth, 2 ventrolateral at middle and apical fourth, and 4 dorsal bristles from near the base to the apical fourth. Middle femur with 1 rather strong bristle at the subapex both anteriorly and posteriorly and 1 short, strong anterodorsal bristle quite at the apex. Tibia with rather long bristles, 3 anterodorsal, 3 posterior and 2 ventral bristles from beyond the middle and at the outer fifth. Anterior femur with short, stout bristles near the apex posteriorly and nearer the apex anteriorly. The tibia has 3 or 4 rather long, stout, posterior bristles, 2 or 3 minute, short, dorsal bristles, and the apex anteriorly with 1 extremely long, stout bristle, almost as long as the basitarsus; also 4 short ventral and 1 short posterior bristles. No spine present. Basitarsus slightly lengthened, a little longer than the next two. Claws only moderately sharp, chiefly curved on the outer third. Pulvilli nearly as long as claws. The empodium strongly swollen at the base and nearly as long as pulvilli.

Wings: The wings are broad; marginal and all the posterior cells and the anal cell widely open. Second basal cell ends in 3 veins, the middle vein short. Anterior crossvein enters the discal cell at the middle. Base of second posterior cell wide, especially anteriorly; the anterior branch of the third vein ends at apex. Alula present.

Abdomen: The abdomen is somewhat flattened on the middles of the first 3 or 4 tergites; sides nearly parallel in the male as far as the end of the fifth; first tergite about one-sixth as long as the second, with a few hairs laterally and 2 or 3 stout but rather short, reddish bristles; other tergites without special pile or bristles; the pile is very scanty, suberect, and short. In the male seven tergites visible, the sixth tergite is nearly as long as the fifth, the seventh is about half as long as the sixth, and there is a trace of the eighth tergite visible on the left. In the female eight tergites are present, the eighth is three-fourths as long as the seventh, shining black and bears 4 or 5 pairs of hollowed, reddish brown spines. Male terminalia rather large, elongate and conspicuous. It is not rotate; the epandrium is long, slender, fully cleft but apposed and extending considerably beyond the other structures. Proctiger prominent. Gonopod long, with a narrow, apical dorsal prong. Hypandrium short but large and broad with transverse margin. The aedeagus is particularly large, long, curved and conspicuous, arched downward and upward to the apex of the proctiger. The cavity is largely open.

Distribution: Australian: *Harpagobroma fumosa*, new species.

Harpagobroma fumosa, new species

Length 10 mm. Male, female. Head: The face is densely golden micropubescent with the mystax pale, brownish white. The pile of the occiput and proboscis is golden; the occiput on the upper half has 13 moderately stout, yellowish bristles, situated in a straight row not very far from the eye margin, and a lower, medial cluster of 2 or 3 bristles near the lateral midpoint of the occiput. Sides of front with 3 weak, yellow bristles. Ocellarium with 2 pairs of short, not divergent, yellow bristles, slightly curved forward. Antenna with first segment yellowish brown, the second darker, the third segment black; pile and bristles of antenna reddish yellow.

Thorax: The thorax is browish golden micropubescent to pollinose, including the whole of the pleuron; bristles light browish red.

Legs: The ground color of the legs is dark, the bristles and pile reddish yellow.

Wings: The wings are tinged with pale, smoky brown.

Abdomen: The first seven tergites are brownish red or orange, the eighth is shining black. The pile of the abdomen and the bristles of the first tergite are reddish yellow.

Type. Male, from Cairns, Queensland, Australia, 1907; allotype, female, from Palmerston, New Zealand, December 1908. Both are from the Hermann collection and were loaned by Dr. Forster, Director Zoologische Staatssammlung, Munich, to whom the author is greatly indebted for his kind assistance in the loan of material for the preparation of a revision of genera of Asilidae.

Genus *Grypoctonus* Speiser

FIGURES 80, 502, 1889

Grypoctonus Speiser, Schrift, phys.—ökonom. Ges. Königsberg, vol. 65, p. 155, 1928. Type of genus: *Grypoctonus aino* Speiser, 1928, by original designation.

Flies of medium size which are characterized by their very dense, long, fine pile, so dense over areas as to obscure the ground color. Related to *Crytopogon* Loew and *Oldroydia* Hull and distinguished from all presently known genera by the presence of the auxiliary crossvein in the first submarginal cell, making two crossveins in this cell. Abdomen more or less compressed laterally. Length 16 mm.

Head, lateral aspect: The head is unusually long; face strongly produced as a rounded, dome-shaped convexity extending from the antenna to the epistoma. The eye is narrowed below and moderately recessive anteroventrally beginning above the middle. The occiput is extremely thick and prominent but slopes gently away from the eye toward the medial plane. It is obliterated narrowly near the vertex. The occipital pile is exceptionally long, fine and dense; bristles are absent. The proboscis is of medium size, subcylindrical, with blunt apex very slightly tapered above and below, the base slightly swollen, the dorsomedial ridge low. It is directed obliquely downward, the apex bears a number of fine hairs, and there are numerous, very long hairs on the basal half of the ventral surface. Palpus clearly of two segments, l-shaped, the first segment excavated, the second not porate, pubescent dorsally and with a few, long, stiff hairs. The antenna is attached to the upper third; the first segment is slightly longer than the second and both bear long, fine hairs ventrally and a few long hairs at the apex of the second segment. Third segment as long as the head and very slender; first two segments of equal length, with numerous, very long, coarse hairs directed obliquely outward. Third antennal segment longer than the first two combined, much more slender, and with two microsegments. The first is very short, the second three times as long, with spine at apex and both held obliquely downward.

Head, anterior aspect: The face below antenna is less than one-third of the head width and divergent below. Subepistomal area oblique, concave and micropubescent. The face is micropubescent and, except for a narrow lateral strip along the eye from the antenna is of decreasing width below, the face is everywhere covered with numerous, very long, fine, stiff hairs, none of which might be called bristles. The front is rather strongly divergent to the vertex. On either side the front is covered with numerous, long, stiff hairs. Vertex moderately excavated, its sides slanting, the ocellar protuberance large, with large ocelli and bearing numerous very long, slender hairs. Central eye facets strongly enlarged.

Thorax: The mesonotum and pleuron densely pollinose. The mesonotal pile is abundant, very long and rather fine but nowhere obscures the ground color. Acrostical and dorsocentral elements are present. Humerus pilose; bristles absent. On the scutellum the margin and surface as well have numerous, extremely long, stiff hairs. The pleuron is characterized by large, exceptionally dense tufts of long, fine, bushy pile from several areas, with bristles absent. All portions of the propleuron and collar with dense tufts of pile; there is a large, dense tuft of pile on the upper third of the mesopleuron. Metapleuron with its whole central area occupied by a large, radiated tuft of fine pile. Pteropleuron and hypopleuron without pile or at most with a few minute hairs. Hypopleuron with a large patch spot of micropubescence. Metanotal slopes micropubescent only; metasternum with short but abundant pile laterally and long pile ventrally. Postmetacoxal area membranous; tegula pubescent only.

Legs: The legs are stout without being especially thickened, the femora without bristles but thickly covered with long, fine, wavy pile, and in some areas with especially dense tufts or mats of pile. Hind femur with matted, pale pile dorsolaterally on the outer half and laterally below it with dense black pile. Medial surface of hind tibia with unusually dense, oblique, fine pile without setae. These tibiae bear the 8 lateral and 8 to 10 ventral bristles: all rather slender, curved and oblique; the apex has 1 dorsal, 3 lateral, 4 ventral, and 2 medial. Middle femur with dense linear mats of pile anteriorly and posteriorly and anteroapical brush of dense pile; its tibia has exceedingly slender, long, more or less appressed bristles as follows: 10 to 12 dorsal, 10 posterior, and 4 ventral bristles on the outer half. Anterior femur with the curled tufted pile emphasized posteriorly. This tibia has still more delicate, stiff, bristly hairs, a dorsal row of 20, a posterior row of 20 or more, and a ventral row of 10, of which 2 elements on the outer half are distinct bristles. Tarsi end in sharp claws, well developed pulvilli, and a long, basally swollen empodium.

Wings: The wings are of normal width; marginal cell is open; anterior branch of the third vein ends slightly before the wing apex and begins some distance from the end of the discal cell. Costal and subcostal cells not narrowed. Discal cell large and wide, of rather characteristic shape. Fourth posterior cell is slightly narrowed, anal cell widely open. Second basal cell ends in three veins, the middle vein quite short. There is an extra crossvein between the third and fourth veins situated near the end of the discal cell. In both wings of *Grypoctonus lama* the second crossvein, almost as close to the apex as the first one, is towards the base. This extra crossvein is rarely missing but the general venation is still characteristic. The anterior crossvein is situated near the base of the discal cell. Alula quite narrow or absent altogether; ambient vein otherwise complete.

Abdomen: The abdomen is robust and more or less flattened across the tergites and shorter than the wing. It is at least as wide as the mesonotum. Tergite one is unswollen. Males with eight tergites, the eighth a little reduced in length. Females with eight tergites, eighth tergite is two-thirds to three-fourths as long as the seventh, pile of abdomen long, shaggy and matted, more abundant laterally, especially along the side margins but not obscuring the ground color. Bristles absent. Sternal pile long, dense and matted. Male terminalia comparatively short and obtuse and not rotate. The epandrium is not only cleft but has a space between nearly as wide as either lobe; proctiger short, broad and notched with membrane. Gonopod prominent, longer than the epandrium, well separated with a space between on the distal half; it is not oblique. Hypandrium quite short; cavity open, concealed by numerous bristly hairs. Female terminalia with a row of spines on the acanthophorites; lateral processes with 3 or 4 sharp setate spines.

Distribution: Palaearctic: *Grypoctonus aino* Speiser (1928); *daimyo* Speiser (1928); *lama* Speiser (1928).

Genus *Oldroydia* Hull

Figures 78, 507, 1001, 1002, 1701

Oldroydia Hull, Ann. Mag. Nat. Hist., ser. 12, vol. 9, p. 398, 1956. Type of genus: *Oldroydia hamata* Hull, 1956, by original designation.

Medium size flies resembling *Cyrtopogon* Loew and at once distinguished by the hamate anterior femur in males, and in both sexes by the dense mesonotal mane and the exceptionally long, slender, third antennal segment with conspicuously flared apex and subapical spine. The face is strongly gibbous, evenly convex from antenna to epistoma and densely, very stiffly pilose. Length 17 mm.

Head, lateral aspect: The face is rather strongly produced in its full length, convex, abruptly retreating beneath the antenna. Dorsal occiput without bristles. The proboscis is rather short, directed obliquely forward, or straight forward, slightly compressed laterally and bearing numerous, long, fine, yellow hairs ventrally. The palpus is small and cylindrical with two segments and a few fine, long hairs ventrally; segment one is excavated and quite short. The antenna is elongate; the first segment is 1½ times as long as the second, the third segment quite slender and almost stylelike; it is a little thicker at the base, 2½ times as long as the first two segments and bears at its apex a strongly expanded, flat, subtriangular, spade-shaped structure which in turn bears subapically a spine, both sexes have the antenna alike.

Head, anterior aspect: The face is strongly divergent below and beneath the antenna it is only about one-fifth as wide as the head. The pile of the face is exceedingly long and very abundant and directed outward in a radiating fan. The sides of the front and the ocellarium bear numerous, long, fine, erect hairs. The anterior eye facets are strongly enlarged, centrally and medially.

Thorax: The mesonotum has a high, narrow, dense, medial crest of erect pile. Lateral portion of the mesonotum with fine, slender, scattered, bristly hairs. Humerus with numerous, long, fine hairs. There are some hairs on the mesonotum, shorter and stiffer than the remainder, notopleuron with a cluster of 7 or 8 of these, supraalar region with 10 or 12; the scutellum densely covered with extremely long, erect, brownish pile. Upper anterior corner of mesopleuron with a tuft of black hairs. Remainder of mesopleural pile confined to the posterior half. Hypopleuron and pteropleuron without pile. Prosternum dissociated.

Legs: The femora are rather slender, only a little lengthened and without bristles but with a row of rather long, erect, ventral pile which becomes still longer submedially or towards the medial aspect. This pile, while stiff, is hardly of the nature of bristles. Dorsal surface also with some extremely long, delicate pile. The hind tibia bears slender bristles, 10 laterally, 15 dorsally, and 5 ventrally. Middle femur with long pile posteriorly and anteriorly, its tibia with a somewhat appressed row of 5 quite long dorsal and at least as many posterior bristles. Anterior femur with very long hair dorsally on the basal half, shorter beyond; its tibia bears 4 or 5 short bristles dorsally and 6 or 7 longer ones posteriorly. Apex of anterior tibia without spine or spur. Claws sharp and slender, the pulvilli nearly as long as the claws. The males bear a long, prominent, somewhat twisted, apically flared, hammerlike or chisellike, ventrobasal process on the anterior femur. Anterior coxa long and with a dense mat of long, fine pile.

Wings: All the posterior cells are rather widely open; marginal cell widely open; costal and subcostal cell narrow; anal cell widely open. Alula present and narrow and ambient vein complete.

Abdomen: The abdomen is distinctly compressed laterally but tending to be subcylindrical. Males with eight tergites, the eighth extremely short. There are eight tergites visible in the female, the last one only one-third as long as the seventh and bearing 4 or 5 pairs of short, rather sharp spines on either side. The abdomen is densely long pilose but not bristly; it appears to be naturally compressed laterally. The sternites bear pile which is long. Male terminalia moderately conspicuous, rotate 90 degrees. The epandrium is uncleft but has a fused, apical notch and medial groove or fissure. The gonopod is prominent and convex; the hypandrium is convex, bulging, broad and densely, long, stiffly pilose: Females with acanthophorites and 6 pairs of slender, long, sharp spines.

Distribution: Oriental: *Oldroydia hamata* Hull (1956).

Genus *Toremyia* Hull

Figures 79, 160, 504

Toremyia Hull, Ann. Mag. Nat. Hist., ser. 12, vol. 10, p. 893, 1957. Type of genus: *Dasypogon scatophagoides* Walker, 1854, by original designation.

Medium size flies related to *Cyrtopogon* Loew and *Grypoctonus* Speiser. The abdomen tends to be compressed laterally and they are distinguished in both sexes by the wide, costal cell, the extremely narrow subcostal cell, and, further, in the males, by a long, stout, clublike, erect and curved process found at the base of the anterior femur. Also distinguished by the elongate, arched, anterior basitarsus and the medially arched, basal tergite; the latter is present in both sexes. A conspicuous, narrow, dense, mesonotal mane distinguishes it from all except *Eucyrtopogon* Curran and *Comantella* Curran. Length 17 mm.

Head, lateral aspect: The face is very strongly gibbous throughout and also convex from the dorsal aspect. The eye is comparatively short, convex anteriorly, plane on the upper posterior profile but strongly recessive anteriorly beginning at the middle. The occiput is thick with dense, long pile, the outer elements a little stiffer and more bristly in appearance. Proboscis short, robust, directed nearly straight forward, and laterally compressed; it is gradually swollen towards the base from the dorsal aspect but with minute pile and bluntly rounded. Palpus clearly of two segments, the first segment short, excavated, the second elongate but slender and cylindrical with a few fine, ventral and lateral hairs. The antenna is attached at the upper third of the head; it is elongate and quite slender. The first segment is 1½ times as long as the second. The third segment with the microsegment included is twice as long as the first two combined; it is much less wide than the second segment but is a little wider near the base. This segment is cylindrical and bears two microsegments; the first is short, obliquely and ventroapically truncate; second is longer, at its tip a spine directed obliquely downward, its length one-fourth the length of the third segment. First two segments with numerous, long, dorsal, ventral, and lateral bristles or bristly hairs all quite slender.

Head, anterior aspect: The face below the antenna is less than one-fourth of the head width and strongly divergent below. The front and vertex are nearly the same width as the upper face. Subepistomal area large, oblique but well concealed by the dense pile and proboscis. Face densely micropubescent with a wide, dense, medial band of exceedingly long, slender, bristles that extend well beyond the antenna and far beyond the proboscis. Front pubescent on the side, with a wide band of many long, bristly hairs. Vertex moderately excavated, the ocellarium large, all the ocelli quite large, and in the middle with a tuft of 15 to 20 long, slender bristles and several additional pairs behind the ocelli. Anterior eye facets enlarged.

Thorax: The thorax is thinly, minutely micropubescent. Pile of mesonotum abundant, long, fine and bristly in character. There is a dense, narrow band of long, slender bristles down the middle of the mesonotum for its full length. Dorsocentral elements are poorly or not at all differentiated anteriorly but become an irregular band posteriorly, long and slender but less dense than the medial band. Humerus with numerous, long, stiff, bristly hairs. Lateral margins with numerous long, slender bristles: notopleuron with 6 to 8, supraalar area with 10 to 12 in 3 rows, postalar with 8 to 10 and the posterior margin of the scutellum with a wide band of which the lower row contains 6 or 8 pairs of bristles, the remainder of the scutellar disc with some shorter, fine pile. Propleuron with abundant, long, fine pile including the collar. Bristles absent. Upper and posterior half of mesopleuron with numerous, long, stiff hairs. Anterior and posterior sternopleuron with some fine hairs. Pteropleuron and hypopleuron apilose. Almost the whole of the convex metapleuron densely covered with long, slender, orange bristles and bristly hairs. Metanotal slopes micropubescent only; lateral metasternum with long pile posteriorly, similar dense pile on the ventral metasternum, the postcoxal area membranous; tegula with setae.

Legs: All the femora are slender; hind femur and its tibia especially slender and a little more elongate. The dorsal pile of the hind femur short and subappressed medially, becoming longer and somewhat bristly in character laterally; ventrally there is a rather dense fringe of short, nearly erect, stiff pile on the medial aspect intermixed with fine, long hairs on the basal half and 6 or 7 others situated distally and ventrally. There is a dense, posteroventral fringe of pile on the middle femur on the basal half; its dorsal pile is extremely long and fine and these flies bear the following complement of bristles or bristly hairs: On the hind femur laterally 18 to 20, which are long and tend to be dorsolateral, with fewer shorter, more lateral elements; on this tibia a conspicuous, medial row of 10 or 11 long, slender elements and similarly conspicuous dorsal row of 12 to 14, with 8 or more anterodorsal and 8 ventral bristles. Middle femur with dense, slender bristles anteroventrally on the basal half intermixed with equally long, fine pile; middle tibia has 10 anterodorsal bristles, besides in front of them an additional row of somewhat shorter, fine hairs. Also it has several rows of extremely fine hairs dorsally and posterodorsally, besides 10 similar, still longer hairs posteriorly and 10 to 12 elements ventrally.

Anterior femur at base in males with a long, stout, hammerlike process. The bristles of the anterior femur are similar to the middle leg but the tibial bristles are shorter and somewhat more numerous posteriorly. Apex without spine. Anterior basitarsus in the male arched, bent backward at the apex so that it is strongly concave from its lateral aspect; next 3 tarsal segments very short and progressively smaller. Tarsi end in sharp, small claws, large pulvilli and slender, bristlelike empodium.

Wings: The wings are widest in the middle, the costal cell wide, the subcostal cell characteristically and greatly narrowed. The marginal cell open. Second submarginal cell with nearly parallel sides; all the posterior cells and the anal cell widely open. The anterior crossvein enters the discal cell at the basal fourth; the second basal cell ends with 3 veins and the alula appears to be absent or confined to a very narrow, slender strip. Ambient vein complete. Males may have a black spot and females with a dusky spot at apex.

Abdomen: The abdomen is somewhat compressed laterally; first tergite raised in the middle posteriorly and eight tergites in the male, the eighth tergite only one-fourth as long as the seventh. Females with eight tergites, the eighth also only one-fourth as long as the seventh. Pile of the abdomen is long and dense, strongly flattened along the sides of the last three tergites in the male only. Bristles are absent, including the first tergite; the pile is longer on the sides of the first three tergites. Male terminalia are short, not rotate or at most only slightly turned to the left. Hypandrium undivided; superior forceps very short.

Female terminalia with a row of at least 6 pairs of quite fine, narrow, sharp spines with additional spinous bristles laterally. Sternites with abundant, dense tufts of long, bristly pile in the middle including the first sternite.

Distribution: Oriental: *Toremyia scatophagoides* Walker (1854).

Genus *Crobilocerus* Loew

Figures 73, 538, 1007, 1008, 1721, 1972

Crobilocerus Loew, Linnaea Entomologica, vol. 2, p. 533, 1847. Type of genus: *Dasypogon megilliformis* Loew, 1847, by monotypy.

Medium size flies which are exceptionally robust. All cells of the wing are open; the face is moderately produced without being strongly gibbous and is very densely pilose with bristles on the lower half. These flies are long pilose on the thorax but short pilose on the abdomen, except for its lateral pile. The bristles of the legs are strongly developed. The antenna is slender and elongate and the species are readily recognized by the terminal microsegment which bears a tuft of fine, long hair. Length 15 to 18 mm.

Head, lateral aspect: The face is only moderately extensive, gently convex and retreating below. The eye is short, distinctly recessive anteroventrally, beginning to recede above the middle of the eye. Occiput unusually dense and prominent and with dense, long, fine pile throughout but longer and denser below. Among the dorsal pile there are 10 to 12 pairs of stout, pale bristles. Proboscis large, strongly compressed laterally with a high medial ridge developed subbasally and continuing to the outer third or more narrowly nearly to the apex. The proboscis is plane below but rather strongly tapered above; the apex is bluntly rounded to a point and bears fine, long, bristly pile for a short distance above and more extensively below. The sides of the proboscis near the base have 5 or 6 long, slender hairs and a like number ventrally. Proboscis directed obliquely downward. Palpus large and robust, the first segment short and excavated, with fine, long pile below; the second segment is attenuate towards the apex, with numerous, stout bristles ventrally and laterally but only subapically; apex microporate. The antenna is attached at the upper fourth of the head, long and slender, the first two segments robust and short; the first segment is only a little longer than the second, the second almost spherical. The third segment is narrower than the second, very slightly narrowed distally, and with its microsegment is twice as long as the first two segments. Microsegment held obliquely; they are 2 or 3 times as long as wide, obliquely truncate at apex and bearing a tuft of 5 or 6 bristly hairs; the apex also has a dorsolateral spine. Front short, densely long, bristly pilose laterally, leaving the middle narrowly apilose. Vertex moderately excavated, with slanting sides, the ocellarium large, high, and bearing 3 or 4 pairs of fine, bristly hairs across the middle. Ocelli large, anterior eye facets moderately enlarged.

Head, anterior aspect: The face below antenna is more than one-third the head width, with parallel sides. Subepistomal area small, oblique, concave. The face is very thinly pubescent, more or less bare in the middle, densely covered on the dorsal half with long pile, on the ventral half with numerous, equally long bristles; the lower elements are stout and not extended down the sides of the short subepistoma. The front is short, thinly and minutely pubescent but with a very large patch of long, fine pile laterally leaving the middle third bare. Front and vertex a little wider than face, the vertex but little excavated. The ocellarium is large with vertical sides, with large ocelli and 3 or 4 pairs of long, slender hairs between the ocelli and several pairs between the posterior ocelli. Anterior eye facets a little enlarged.

Thorax: The pleuron shining; mesonotum thinly pollinose. Pile of mesonotum dense, fine, moderately long and erect with a narrow band of acrostical hairs. Dorsocentral elements clearly developed although the prescutellar pile is a little longer. Humerus with abundant, long pile and 4 bristles. The following complement of lateral bristles is present in the type of genus: 5 or 6 notopleural, 3 supraalar, the scutellum with 6 or 7 pairs of more slender bristles and considerable additional long pile. Scutellum slightly convex with 3 transverse depressions. Propleuron densely long, fine pilose; bristles absent, except on the collar, where there are 4 or 5 pairs of slender bristles. The upper border of the mesopleuron narrowly and the upper posterior corner with considerable long pile; there are 7 or 8 long, fine hairs on the lower corner of the mesopleuron. Pteropleuron and sternopleuron apilose; posterior hypopleuron convex and bearing a large tuft of long pile; the very convex metapleuron is widely covered with exceptionally long and abundant fine pile and bristles are absent. Lateral slopes of the metanotum micropubescent only. Posterolateral half of the metasternum and the chitinized, convex and ribbed ventral metasternum densely long pilose. Postmetacoxal area membranous; tegula with bristly setae.

Legs: The femora are quite stout without being swollen; this is especially true of the last four. The dorsal, lateral, and ventral surfaces of the hind femur have very long, abundant, erect, fine pile. Bristles of the legs unusually numerous; they are stout, pale, oblique, and of medium length. In the type of genus the following complement of bristles present: on the hind femur 8 dorsolateral, 3 dorsal subapical and 3 dorsomedial subapical, besides 2 similar medial bristles but none along the ventral, ventromedial, or ventrolateral surfaces. Hind tibia with 3 dorsomedial confined to the outer half, 5 dorsal, 6 dorsolateral, with 7 or 8 lateral, besides 4 ventrolateral bristles. Ventral surface with a brush of setae only at the extreme apex; the medial surface has dense, long, fine, erect pile. Middle femur with 7 bristles near the apex anteriorly and dorsally and 2 or 3 posteriorly besides long, dense pile anteriorly, posteriorly and ventrally. This tibia has 8 anterior bristles, 8 anterodorsal, a like number of posterodorsal and 7 or 8 long posterior, and 4 long ventral bristles. Anterior femur with 3 anterior bristles on the basal half and with moderately long pile on all surfaces and with 2 or 3 bristles anteriorly at or near the apex. Anterior tibia with 11 anterodorsal bristles besides shorter elements in front of them, 6 or more dorsal, 4 or 5 posterodorsal, 7 posterior and 3 ventral bristles at the middle and beyond. Apex without spine. Tarsi end in slender, sharp claws curved from the base. Pulvilli extend to the outer third of the claw; empodium of the same length, rather stout basally.

Wings: All cells of the wing open widely except the anal cell which is narrowly open. The anterior crossvein enters the discal cell at or just beyond the middle; the second basal cell ends in 3 veins, the middle vein long. Alula a little wider than the costal cell, the ambient vein is well developed to the anal cell, continues throughout the remainder of the wing, though reduced.

Abdomen: The abdomen is unusually broad and robust and wider than the thorax; it is rather flattened in the middles of the anterior tergites. There are seven tergites in the male, the seventh and the eighth nearly equal in length and each half as long as the sixth. Females with eight tergites, the last two also of equal length and slightly shorter than the sixth. Pile of the abdomen minute, appressed and setate over the middle of the tergites, forming long, matted, appressed fringes laterally on the posterior margins of the tergites and also tufts of pile extend outward from the posterior corners. Sides of the first tergite with several pairs of weak bristles and middle of the lateral portion of the second tergite with a row or patch of weak, short, appressed bristles. Male terminalia short, broad, and arched downward as in *Acnephalum* Macquart and not rotate. The gonopod has a sharp, terminal spur. Female with 6 pairs of long, spatulate, apically rounded, spoonlike spines and several ventrolateral bristles.

Distribution: Palaearctic: *Crobilocerus megilliformis* Loew (1847).

Genus *Anarolius* Loew

FIGURES 84, 526, 1003, 1004, 1868

Anarolius Loew, Stettiner Ent. Zeitung, vol. 5, p. 165, 1844. Type of genus: *Anarolius jubatus* Loew, 1844, by monotypy.

Medium size flies with wide, strongly gibbous face resembling *Cyrtopogon* Loew. They are bristly and densely long pilose with all wing cells open. They are recognized by the long, slender, sharp claws, which have no associated pulvilli, and by the dense, exceptionally long face pile and the tufted, manelike pile on the posterior half of the mesonotum. Length 12 to 15 mm.

Head, lateral aspect: The face is strongly produced and gibbous, beginning immediately beneath the antenna; the whole face is convex and domelike. Eye subtriangular, being greatly narrowed below and also strongly anteroventrally recessive, beginning at a point representing the upper fourth along the posterior margin. The occiput is exceptionally thick and tumid and in addition its apparent thickness is greatly increased by the recession of the eye. Pile of occiput long, dense, fine and matted on the ventral half, replaced in the middle by a wide band of exceptionally long, fine, bristly pile. Bristles begin at the upper third of the occiput, where they are set deep medially, are few in numbers but quite stout and pale and consist of 11 pairs. In addition there is considerable exceptionally long, fine, vertical pile. Proboscis short, robust, moderately widened towards the base from the dorsal aspect and bluntly rounded at the apex and directed either forward or downward; it bears numerous long, stiff hairs at the apex, these hairs extend back ventrally along the apical third and with a lateral, subbasal tuft of 3 or 4 long, oblique, distinctly bristly hairs and with a dense, extensive basal ventral patch of long, stiff pile. Palpus long and cylindrical, the first segment short, excavated, fused medially; the second segment nearly six times as long as the first, with long, dense pile. The antenna is attached at the upper third of the head, elongate and exceptionally slender; the first and second segments are short, of equal length and robust, especially the first. The third segment is considerably more slender than the second and with microsegment included, it is more than twice as long as the first two segments combined. The third segment is very slightly widened on the outer half. The microsegment is thick, long and stylelike with a long, apical spine; it is a little more than one-third the length of the third segment.

Head, anterior aspect: The face below antenna is more than one-third the head width, with nearly parallel sides. The vertex is one-half the head width. Subepistomal area of moderate size, slightly oblique, concave, well concealed by dense, long pile. Face pubescent, except over the middle bristle-covered portion. There is a narrow, submarginal band on the sides of the face bearing some short pile. The greater portion of the wide face is, however, beginning beneath the antenna, covered with an exceptionally dense band of long, slender, bristly hairs or weak bristles. These extend far beyond the proboscis and some of them beyond the antenna. Below the pile becomes even more dense, pale and less bristly in character within the type of genus. In other species there is a comparatively narrow, fanlike band of the slender bristles, or bristly hairs extending the full length of the face and enclosing within a dense, vertical band of pile. Similar long pile and some bristles continue thickly down the sides of the subepistoma. The front is short, with a large tuft of long, slender, bristly pile which is continuous with similar pile on the vertex. The antennae are set rather far apart. The vertex is greatly widened and bears laterally dense tufts of long, bristly pile. It is very little excavated near the eyes, although the large, low ocellarium is set within a moderately deep depression and bears 4 or 5 pairs of long, slender bristles. Anterior eye facets enlarged over a small area.

Thorax: The thorax is either pollinose or with the pleuron almost wholly shining. The pile of the mesonotum is abundant, long and fine, and for the most part bristly. The acrostical pile is poorly differentiated in the type of genus on the anterior portion of the mesonotum, but in some species there is a dense, very long, thick mane beginning anteriorly and extending throughout the length of the mesonotum and in other species is confined to the posterior half of the mesonotum. There is a row of extremely long, but very fine dorsocentral elements on either side containing 12 to 15 elements. Humerus with a few fine, long hairs. In the type of genus the following complement of stout, long, lateral bristles is present: 3 notopleural, 3 supraalar, 5 postalar, the scutellum with 8 to 10 pairs of long bristles, besides additional long, fine, bristly pile on the convex disc. Propleuron with long, densely matted, fine pile over the whole; bristles absent, including the collar. Upper mesopleuron and upper middle of the sternopleuron with a tuft of long, fine pile; posterior hypopleuron with a patch of slender bristles. Metapleuron with a wide band of exceptionally abundant, long, bristly pile. Lateral slopes of the metanotum micropubescent only; the lateral metasternum has short, fine pile; the chitinized ventral metasternum is without pile. Postmetacoxal area membranous; tegula with setae.

Legs: The femora are quite stout without being swollen and are relatively short. The pile is abundant, long and rather matted, more or less appressed dorsally on the hind femur and forming long fringes laterally and posteriorly on the femur and tibia but especially long and conspicuous on the tibia. In the type of genus the following exceptionally long, stout bristles are present: on the hind femur 6 lateral, a row of 4 close-set dorsolateral on the outer fifth, 3 similar dorsomedial, also 6 ventrolateral bristles. On the hind tibia are 5 dorsomedial, 4 dorsal, 4 dorsolateral, and set on the outer half 2 lateral bristles; in addition the ventral, anterior, and posterior mats of long pile are very dense. Middle femur with a prominent, matted fringe of long pile on the anterior, dorsal, and posterior surfaces and several long, stout, anterior bristles. These tibiae have 6 very long, attenuate, stout, anterodorsal bristles, 5 similar dorsal, at least 4 posterodorsal, and 5 posterior bristles. The posteroventral area is occupied by a still longer fringe of dense, opaque pile, the corresponding anteroventral surface similarly covered. Anterior femur with long pile posteriorly and appressed, long pile dorsally and anteriorly with 1 dorsal subapical and 2 posterosubapical bristles; anterior tibia with 7 anterodorsal, at least 6 posterodorsal, 5 posteroventral bristles intermixed with long pile, 4 or 5 long ventral bristles with long pile. Apex of anterior tibia without spine. Bristles of the tarsi exceptionally long, longest posteriorly on the middle tarsi; all tarsi end in long, sharp, gently curved claws without pulvilli; empodium long and moderately compressed laterally.

Wings: The marginal and all of the posterior cells widely open: the second basal cell ends in three veins, the middle vein short. Anal cell open. Alula a little wider than the costal cell; ambient vein complete.

Abdomen: The abdomen is short, robust, convex above but distinctly compressed laterally. Male with seven tergites; the seventh is one-third as long as the sixth segment; sixth tergite slightly shorter than the fifth. Females with eight tergites. Sides of the first tergite with 3 or 4 pairs of long, bristly hairs, otherwise bristles are absent. Pile of abdomen dense, very long, fine and rather matted; sternites with similar pile. Male terminalia of moderate length, not rotate, the superior forceps short. The females bear acanthophorites with a series of short dorsolateral spines.

Distribution: Palaearctic: *Anarolius fronto* Loew (1873); *jubatus* Loew (1844).

Genus *Pycnopogon* Loew

FIGURES 108, 499, 1011, 1012

Pycnopogon Loew, Linnaea Entomologica, vol. 2, p. 526, 1847. Type of genus: *Pycnopogon mixtus* Loew, 1847, by monotypy.

Medium size flies of robust character. Distinguished by the extremely long, shaggy pile of the thorax, head, legs and the sides of the abdomen. Related to *Heteropogon* Loew, they are separated by the wider vertex and wider ventral part of face; these parts are distinctly wider than the face immediately below the antenna. The antenna usually slender with two microsegments, the second microsegment quite long and attenuate. Length 10 to 17 mm.

Head, lateral aspect: Face rather short, slightly convex, the eyes of medium length, well developed above and below, strongly convex anteriorly, gently convex behind. The occiput is short but better developed ventrally, especially towards the medial area. The pile of the occiput is dense, matted and long, with 10 pairs of bristles on the dorsal third, which are obscured by pile. The proboscis is short, stout, obtusely pointed and tapered chiefly on the dorsal apical aspect. From the dorsal view it is rather strongly widened towards the base; the apex bears a few long, stiff hairs above and below, and there are numerous long hairs laterally at the base. Palpus clearly of two segments, the first excavated, the second cylindrical, not porate, with numerous, long bristly hairs on the apex and on all sides except the medial. The antenna is attached at the upper fourth of head; it is rather long and slender and distinctly longer than the head. The first segment is a little longer than the second, the third, including the style, nearly twice as long as the first two. The third segment is widest at the base, more slender than the preceding segment, strongly attenuate, obliquely truncate at the apex and carries two microsegments held at a strong, oblique, ventral angle downward, the first short, the second attentuate to a point and carrying a short spine. First and second segments with a number of long, stiff hairs ventrally.

Head, anterior aspect: The face below antenna one-third the head width and slightly divergent below. Subepistomal area large, bare, concave, strongly oblique and more or less concealed by the dense overhanging mystax. The face is not pubescent, except narrowly along the eye margin, in the type of genus. The pile of the face is very dense, including numerous, long, slender bristles found over the whole of the face; those above are directed nearly straight outward, those below still more dense and together with the pile form a ventral, oblique mat extending down over the subepistomal area. The front is short, not pubescent but densely long pilose, the lateral pile stiffer and almost bristly. Vertex rather deeply excavated, the ocellarium large with steep sides and a pair of long, stout, divergent bristles and additional long pile. Eye facets rather strongly enlarged centrally.

Thorax: The thorax is pollinose on the mesonotum but more or less bare posteriorly, the pleuron polished and bare. The pile of the mesonotum is dense, rather long, subappressed and shaggy, with lateral bristles as follows: 4 notopleural, 5 supraalar, 12 or 15 slender postalar, and 6 pairs of long, slender scutellar marginal bristles. These numbers are reduced in some species. Propleuron with dense tufts of long pile on all portions, the collar with pile only. Upper posterior mesopleuron, the hypopleuron and the metapleuron each with a dense tuft of long pile. Metanotal slopes micropubescent only. Lateral metasternum with pile, ventral metasternum with abundant long pile. Postmetacoxal area membranous; tegula with bristles.

Legs: The hind femora are especially stout; all the femora and the tibiae bear dense, bushy pile obscuring the bristles in the type of genus. In the type of genus is the following complement of bristles: on the hind femur 2 lateral apical, 1 subapical, and 2 medial subapical; hind tibial bristles long and stout, 6 dorsal, 7 lateral bristles. The middle femur has 3 bristles anteriorly at the apex and 2 posteriorly, its tibia with at least 6 dorsally, 9 or 10 anteriorly, 6 or 7 posterodorsally, and approximately the same number posteriorly. Anterior femur with 3 anteriorly at the apex and 2 posteriorly; anterior tibia with 9 anterodorsally, 6 dorsally, 8 posteriorly, apex of tibia without spine. Tarsal segments short and stout, ending in very stout, sharp claws curved from the base, long pulvilli and empodium.

Wings: The wings are broad; the marginal cell is widely open; the anterior branch of the third vein ends above the wing apex, the posterior branch behind the apex. The first posterior cell is widely open and wider at the margin than in the middle, the second therefore slightly narrowed; the fourth is narrowed to half its width. Anal cell closed with a short stalk or narrowly open. The second basal cell ends with a short middle vein. Alula of medium width; ambient vein complete; villi absent.

Abdomen: The abdomen is broad and robust as wide as the thorax and more or less flattened. Male with eight tergites, the last three tergites each slightly reduced in length. Female with eight tergites. Pile of the abdomen is short, flat appressed in the middles of the tergites or in the type of genus long and matted laterally and in the posterior corners. Sides of the first tergite with 3 or 4 weak bristles. Remaining tergites without bristles or with tufts of several bristles laterally on each tergite except the last two. Male terminalia short and not rotate; it has 2 short pubescent flaps which turn downward. The female has 3 or 4 pairs of stout, short, spoonlike spines.

Distribution: Neotropical: *Pycnopogon divisus* Coquillett (1902).

Palaearctic: *Pycnopogon anthophorinus* Loew (1847); *apicalis* Matsumura (1916); *apiformis* Macquart (1849); *barrus* Walker (1849); *denudatus* Séguy (1949); *fasciculatus* Loew (1847); *hatakeyamae* Matsumura (1916); *laniger* Dufour (1833); *leucostomus* Engel (1930); *melanostomus* Loew (1874) [=*hirsutus* Becker in Becker and Stein (1913)]; *mixtus* Loew (1847); *nikkoensis* Matsumura (1916); *pallidipennis* Brullé (1832) [=*apiformis* Loew (1847)].

Genus *Sisyrnodytes* Loew

FIGURES 106, 501, 1031, 1040

Sisyrnodytes Loew, Neue Beiträge . . ., pt. 4, p. 40, 1856. Type of genus: *Acnephalum brevis* Macquart, 1838, as *Sisyrnodytes floccus*, by monotypy.

Small, exceptionally stout, robust flies with short, compact abdomen, and a large thorax, dominated by the high, convex mesonotum. The pile is coarse, some of it crinkled but much of it in the character of slender, weak, bristly hairs. Podal bristles abundant and stout but rather short. Eyes distinctly flattened. This genus is characterized by the fact that several of the posterior veins are atrophied toward the wing margin, the first and fourth posterior cells closed. The ambient vein absent; pulvilli absent. Length 8 to 12 mm.

Head, lateral aspect: The face is not at all visible in profile. The eyes are considerably more narrowed above, obliquely flattened on the upper three-fifths, not recessed below, subangulate behind. The occiput is moderately thick though only very slightly developed above and obliterated at the vertex. Pile of occiput coarse, moderately long, dense and opaque with an irregular patch of numerous weak bristles which begin just above the middle but become more numerous near the vertex and which become stouter and abundant behind the vertex. The proboscis is quite short, stout, subcylindrical, with bluntly tapered apex and high medial ridge. The apex has stiff pile, the base scarcely swollen and with very long hairs ventrally. The proboscis is directed nearly straight downward. Palpus clearly of two segments, but the basal segment rather short, excavated, the second segment long, cylindroid, subclavate, attenuate close to the apex and with numerous, long, coarse hairs. The antenna is attached to the upper third; the first two segments are quite short, of equal length, beadlike, the third elongate and slender, thickest close to the base, narrowed beyond and gently attenuate towards the apex. The third segment is 2 to 3 times as long as the first segments combined, bears a short microsegment followed by a long microsegment which resembles a fleshy style, and carries a short, stiff setae above, but with several, slender, quite long, opaque bristles below; the second segment has an even longer dorsal bristle combined with other setae and with ventrally a stout bristle longer than the third segment; combined also with 3 or 4 somewhat shorter, weaker bristles.

Head, anterior aspect: The face below antenna is less than one-fifth the head width and is divergent below. Face without micropubescence, densely covered to the eye margins with opaque, rather long, bristly pile, shorter and subappressed along the eye margin, longer below near the bottom of the eyes where it is curled and directed straight downward. Subepistoma quite small and horizontal. The front is slightly divergent, the vertex of nearly the same width, slightly wider, the eyes rising considerably higher than the exceptionally large ocellarium. The ocelli are large, protuberant and bear across the center 2 or 3 pairs of long, slender, bristly hairs, 6 or more shorter hairs anteriorly, 3 or 4 long and 6 or more shorter hairs posteriorly. Sides of front with dense, appressed, long, coarse pile. Eye facets exceptionally enlarged.

Thorax: The mesonotum with micropubescence only narrowly above the wings; for the most part, together with the pleuron, bare. Pile of mesonotum of two types: the first consists of numerous, scattered, rather long, curled, stiff, suberect setae or bristly hairs, growing longer posteriorly and with acrostical and dorsocentral elements not or scarcely differentiated; the second, which may also occur, consists of rather matted, abundant, coarse, opaque, flat appressed, bristly pile, in which there is a distinct, narrow acrostical band present. Humerus with pile of both types. Moderately long, stout bristles present as follows: 5 or 6 notopleural, 3 supraalar, 3 or 4 postalar, and some 12 pairs of slender scutellar bristles. Scutellar disc with coarse, crinkled pile. Pleuron without pollen or pubescence, as polished as glass. The propleuron has a dense tuft of coarse, opaque pile; the collar has a multiple row of stout bristles containing 15 or more pairs. Upper mesopleuron, the anterior prolongation of which is strongly convex, and the sternopleuron with a tuft of dense, coarse pile. Pteropleuron and hypopleuron without pile. Hypopleural pubescent patch spot present. Metapleuron with a wide band of numerous, long, stiff, coarse, opaque hairs. Metanotal slopes micropubescent only; metasternal slopes and the metasternum with considerable fine hair. Postmetacoxal area membranous; tegula with 8 to 10 long, stiff hairs Prosternum dissociated.

Legs: All the femora stout, the hind femur especially stout. All pile long, subappressed, coarse, and opaque. The hind femur bears a transverse dorsal subapical cluster of 4 bristles, and a dorsal row of 8 rather long bristles; ventrolaterally there are 8 or 10 long, slender, bristly hairs. This tibia has stout, moderately long, curved, oblique bristles: 6 dorsal, 5 dorsolateral, 2 ventrolateral from the middle. The medial surface has a brush of setae but it is completely absent except on the distal fourth. Apex with 12 stout spinous bristles, of which 4 or 5 are medial. Middle femur with 2 strong and 2 or 3 weak anterior bristles and scattered long hair ventrally, and matted rather long hair posteriorly; the tibia has moderately long, sharp bristles as follows: 3 dorsal, 4 or 5 anterodorsal, 6 posterior, and 3 or 4 posteroventral. Anterior femur with 1 or 2 short, stout dorsal and anterior subapical bristles, the tibia with 5 strongly appressed, stout, dorsal, 4 similar posterodorsal, 4 posterior, and 4 ventral bristles, and a medial brush of setae. Apex without spine. Tarsi end in more or less apposed, long, rather slender, sharp claws curved from the base; pulvilli absent or reduced to minute stubs; empodium present, about three-fourths as long as the claws.

Wings: The wings are hyaline; the marginal cell widely open and wide apically; anterior branch of third vein ends well above the wing apex, the costa likewise; the ambient vein is absent. All remaining veins atrophied some distance from the wing margin; first and fourth posterior cells closed. The second submarginal cell may be with or without a spur vein at its base. Alula large; second basal cell ends in three veins.

Abdomen: The abdomen is short and robust, as wide as the thorax, distinctly shorter than the wings. First tergite not swollen. There are six tergites present in the male, the seventh completely concealed beneath the sixth. Females with six, or with the seventh protruding as a narrow lip. Pile of abdomen abundant, coarse, opaque, flat appressed. There is some longer, similar pile, more or less erect, which lies laterally and along the posterior margins of at least some of the segments, especially the terminal segments. True bristles absent. Sternal pile long, fine, erect and abundant. Male terminalia deeply recessed beneath the overlapping sixth and seventh tergites. The rather large proctiger and the slender, acutely pointed elongate posterior processes of the gonopod protrude from beneath and may be seen from the dorsal aspect. Epandrium simple and uncleft and unnotched. The gonopod is rather enlarged and expanded basally and well separated with long, posterior process. The hypandrium forms a more or less triangular plate which may be extended as a posterior process. Female terminalia completely recessed within the seventh tergite, which may appear as a very narrow linear protrusion from beneath the more or less cuplike sixth tergite. The female has acanthophorites with on each side a row of slender, sharp spines.

Distribution: Palaearctic: *Sisyrnodytes brevis* Macquart (1838) [=*contrarius* Walker (1871), *floccus* Loew (1856), *nilicola* Rondani (1850)]; *leucophaetus* Séguy (1930); *rufus* Séguy (1931).

Ethiopian: *Sisyrnodytes aterrimus* Engel (1929); *curtus* Wiedemann (1819); *disjunctus* Séguy (1931); *major* Adams (1905); *niger* Bezzi (1906); *niveipilosus* Ricardo (1925).

This is a small but characteristic Ethiopian genus which extends into the Palaearctic region only along the northern African coast.

Genus *Acnephalum* Macquart

FIGURES 140, 524, 1032, 1044, 1739, 1757, 1759

Acnephalum Macquart, Diptères exotiques, vol. 1, pt. 2, p. 51, 1838. Type of genus: *Acnephalum olivieri* Macquart, 1838. Designated by Engel, 1929.

Broad, exceptionally robust and medium size flies; the short, rather flattened abdomen is wider than the thorax and sometimes bears wide, lateral fringes of dense pile. Bristly hairs are present laterally on the tergites. Readily recognized by the absence of pulvilli and the rather long spur directed basally from near the base of the second submarginal cell. Distinguished from the closely related *Sisyrnodytes* Loew by the open second posterior cell and the ambient vein which ends at the anal cell but is wholly absent in *Sisyrnodytes*. Length 10 to 13 mm.

Head, lateral aspect: The head is of moderate length, strongly convex both anteriorly and posteriorly. The face is short, but convex and retreating, the subepistoma broad and concave. The eye is somewhat narrowed above and distinctly longer below. The occiput is especially prominent above the middle. Pile of the occiput is dense and abundant, short near the eye margin, longer medially with some moderately stout, sharp bristles mixed in with the pile on the dorsal third. The proboscis is short, more or less laterally compressed with a thin, high, medial ridge. The immediate apex is narrowed, rounded and pointed bluntly. It is longer than the face and is directed obliquely downward. Palpus large, with two cylindrical segments. The first segment is small, free and excavated. The second segment is tapering and bluntly pointed at the apex with numerous, long, bristly hairs but no pore. The antenna is attached at the upper third of the head; the first two segments are quite short, the first with 2 or 3 slender bristles or bristly hairs below which are almost as long as the second segment. Second segment with a similarly long bristle both above and below. The third segment is exceptionally long and slender, slightly swollen at the base, with a minute, basal microsegment and a considerably longer, slender microsegment bent downward.

Head, anterior aspect: Below the antenna the face is about one-fourth the head width and divergent below. The face has dense, opaque, fine, matted, appressed pile which is directed downward. There are a few long, stiff, bristly hairs along the lower, lateral eye margins. Front with only short appressed pile and some sparse pubescence. The width at vertex is nearly the same as the upper face. The ocellar protuberance is extremely large, has 3 or 4 pairs of slender bristles, long and partly divergent. Some species have only a tuft of fine, delicate pile. The upper medial central eye facets are rather strongly enlarged.

Thorax: The mesonotum densely covered everywhere with moderately long, subappressed, stiff, setate pile. There is also some curly pile situated in several patches anteromedially, an elongate patch on the inner side of each humerus and a short patch in the anterior middle of the mesonotum on either side of the middle vitta or band. Bristles as follows: notopleural 5, supraalar 2 or 3, postalar 7 or 8, all light brownish yellow and appressed. Scutellar margin with 6 or 7 pairs of slender bristles. The prescutellar area bears slightly longer pile, the metanotal slopes are not pilose. Pleuron for the most part shining bare, mesopleuron in part micropubescent and with considerable, rather long, matted pile. Propleuron with long pile; the pronotal collar has numerous, quite long, slender, brownish yellow bristles and laterally some brownish yellow pile. Metapleuron strongly convex and protuberant, with a wide, central, oval patch of long, slender, brownish yellow bristles and some slender, undulate or crinkled pile; some of the propleural or mesopleural pile is wavy. Metasternum laterally with pile. Postmetacoxal area membranous. Tegula with a matted patch of setae.

Legs: Hind femur stout, with rather long laterally fine, dorsally stiff, brownish yellow pile which is subappressed. Apex with a stout, sharp, somewhat curved bristle dorsolaterally and opposite it dorsomedially a row of 3 transverse bristles. Ventrolateral and ventromedial margins with an abundant fringe of quite long, slender, bristly hairs. Tibia with long, appressed, opaque pile and stout bristles which consist of a double row of long, stout elements, 4 dorsomedial, 6 dorsolateral, and at the apex 1 weak dorsolateral and 1 extremely stout, spinous bristles, as well as 1 dorsomedial, 3 medial, 5 ventral, and 1 ventrolateral bristles. Middle femur with a cluster of 3 dorsomedial subapical bristles and 4 dorsolateral near the apex. Middle tibia with a double dorsal row, more strongly oblique than those of the hind tibia, containing 6 posterior, 4 anterior, and a posterior row of 5 or 6 slender bristles, besides a posteroventral row of 5 bristles. Anterior femur with 2 bristles posterodorsally near apex. Anterior tibia with long, strongly appressed or oblique bristles, a double row dorsally of 4 or 5 bristles partly tripled on the outer half and with more slender, longer elements posteriorly, consisting of 6 or 7 bristles. Apex with 6 bristles and without spine. Claws long, curved at the base gently instead of at apex, stout at the apex but bluntly pointed. Pulvilli absent. Empodium about half as long as claws, bladelike and flattened.

Wings: The wings are broad, with the veins sometimes margined with brown, or nearly hyaline. Marginal cell open. The anterior branch of the third vein ends well above the wing apex and the base of the second submarginal cell characteristically has a well developed spur vein. All posterior cells open, including the second. Ambient vein complete as far as the anal cell, or may be wholly absent.

Abdomen: The abdomen is broad, robust and flattened, wider than the thorax, very gently and only slightly convex across the middle. The first tergite is two-thirds as long as the second. Sides of all the tergites with brownish yellow pile in appressed tufts; that which is on the first tergite is slightly more stiff and more erect. Middles of tergites with microscopically short, appressed pile; the surfaces are granulate and shining. Postmargins of the tergites narrowly bordered with flat, appressed, opaque, brownish white pile. Some species have distinct patches of 5 or 6 tergal bristles laterally on the first 6 tergites; other species have only shelflike fringes of dense, long pile. In the males there are seven tergites, the seventh is one-third as long as the sixth. In the female seven tergites are visible, the last very short indeed but visible from above and about one-fifth as long as the sixth which in turn is only two-thirds as long as the fifth. Male terminalia short and apparently not rotate, with a pair of slender, sharp, downturned hooks from the gonopod. Female terminalia very short, bearing 4 pairs of short, spatulate, apically rounded spines; accessory bristles absent.

Distribution: Palaearctic: *Acnephalum olivieri* Macquart (1838).

Ethiopian: *Acnephalum andrenoides* Wiedemann (1828); *cockerelli* Curran (1934); *decula* Walker (1849); *dorsale* Macquart (1838); *futile* Wulp (1899); *platygaster* Loew (1858); *quadratum* Wiedemann (1828).

Australian: *Acnephalum punctipenne* Macquart (1855).

Country unknown: *Acnephalum coon* Walker (1849).

Genus *Heteropogon* Loew

FIGURES 109, 120, 522, 1035, 1041, 1992

Heteropogon Loew, Linnaea Entomologica, vol. 2, p. 488, 1847. Type of genus: *Dasypogon manicatus* Meigen, 1820. Designated by Back, 1909, the first of 3 species.

Heteropogon has 1 subgenus, *Anisopogon* Loew.

Medium size to rather small flies, rarely large. They are characterized by reduced pile, which is quite short on the thorax and abdomen and the long, exceptionally slender, third antennal segment, which carries with it a style as long as the third segment. In the male there is a further character of some interest in the large, downwardly curved, smooth, convex epandrium, which is at most only notched apically. In this condition they are similar to *Pycnopogon* Loew and from that genus they seem most readily differentiated by the scanty pile and the usually longer, more slender antennal style. In *Pycnopogon* the vertex and lower face are both distinctly wider than the face at the antenna. Also, many of the species of *Heteropogon* tend to have a rather high mesonotum with the head held somewhat downward, the abdomen often drooping and thereby accentuating a hump-backed appearance. Length 7 to 23 mm.

Head, lateral aspect: The face is short, scarcely visible in profile and slightly convex; occasionally it is a little more produced ventrally; the face profile is often plane. Eye of moderate length, strongly convex both anteriorly and posteriorly; usually without posteroventral recession ventrally but moderately recessed in a few Palaearctic species. The occiput is well developed, tapering gradually near the vertex to the eye margin; throughout the middle and below it is quite prominent. The eye is sometimes short, very strongly flattened in front and equally developed above and below. The proboscis is plane below, gently tapered at the apex dorsally, with a prominent, medial ridge; the apex is obtusely rounded, chiefly from above, and bears a number of fine hairs. The proboscis is distinctly compressed laterally and only very slightly swollen towards the base; there is a ventral, medial fissure in the middle; base below with numerous, long, fine hairs. Proboscis usually directed downward and slightly forward. Palpus with the first segment short, excavated, and distinct. Second segment elongate, cylindrical, or a little swollen in the middle, tending to be attenuate apically with an apical pore and a moderate number of slender, bristly hairs on the middle dorsally and laterally but for the most part not apical. However, there are one or more apical bristles in several species, and it may be covered with bushy pile, the whole segment swollen.

The antenna is attached at the upper third of the head and unusually slender; first two segments rather short, of equal length. The third segment is elongate, attenuate apically; at its widest it is scarcely as wide as the second segment; it carries apically two microsegments which are held at a slight angle or in some instances no angle at all. The first microsegment is quite short; the second microsegment is fine and attenuate and often as long as the third segment itself; in other cases as little as two-thirds the length of the third segment; it has a minute, apical spine. Pile of the first two segments usually consists of several long, slender bristles ventrally with shorter bristles dorsally; pile of second segment similar but from the middle below there is characteristically a single very long, stiff bristle, usually as long or longer than the two first segments combined.

Head, anterior aspect: The face below antenna is about two-fifths of head width, the sides parallel and therefore not divergent below. Subepistomal area rather small and nearly horizontal, concave and bare. Face pubescent, with a mystax above the epistoma ranging from 3 or 4 pairs of weak, fine bristles to 5 or 6 pairs of quite stout, long bristles or with still more bristles arranged in several rows. Rarely the bristles may be obscured by dense, fine pile which extends in somewhat diminished density up to the antenna. Front of moderate length, nearly plane with the eye, distinctly divergent; the divergence of the front is continued on to the top of the vertex; sides of front with stiff pile or bristles; the vertex is only moderately excavated but the ocellarium is quite large and high, with vertical sides, and bears usually 2 or 3 pairs of very stout, long, divergent bristles and occasionally additional hairs. In *Heteropogon manicatus* there are several interesting differences; there is no pile on the face; bristles are restricted to the lower fourth; the front is only very slightly divergent, the vertex is convergent, scarcely excavated at all, but the ocellarium is moderately large and carries 3 pairs of stout bristles arising on the posterior portion and curved forward. Anterior eye facets strongly enlarged.

Thorax: The mesonotum and pleuron are pollinose. The pile is very fine and abundant and may be either appressed or nearly erect. Bristles are prominent and numerous. There may be a differentiated band of acrostical pile separated by a bare space but this is less evident in some species. Dorsocentral bristles may be present and consist of 4 pairs before the suture or 3 to 5 pairs behind the suture, or they may be quite absent. The lateral bristles are quite long and consist of 1 to 5 humeral, posthumeral bristles present or absent, 3 to 5 notopleural, 2 to 5 supraalar, 4 postalar, and 2 to 3 pairs of bristles on the scutellar margin, which may be rarely absent. Margin of scutellum often with considerable, quite fine pile, the scutellum is convex, pollinose, with or without pile on the disc. The pronotum bears from 6 to 12 bristles, usually weak but sometimes stronger and characteristically with abundant, long, quite fine pile, which becomes even more matted and extensive below on the lateral propleuron and the anterior coxa. The dorsal and posterior margins of the mesopleuron and sometimes the posterodorsal corner of the sternopleuron bear abundant, long, fine pile. Metapleuron with a large, oval patch of exceptionally long, coarse, pale pile and a similar smaller patch generally present on the hypopleuron. Metanotal callosity micropubescent only. Lateral metasternum pilose, postmetacoxal area membranous.

Legs: The legs are stout without being swollen. The hind femur is densely appressed setate, especially above; laterally the setae are sometimes more scattered and there may be considerable rather long, fine pile on the basal third both laterally and ventrally. The bristles are stout but not numerous. Near the apex is a medial and a dorsomedial bristle or sometimes only the latter, and laterally are 2 similar bristles and sometimes an additional pair of dorsal, apical bristles, with occasional subapical bristles as well. Exclusive of the apex there are 2 or 3 lateral bristles but none ventrally. The tibia has conspicuous bristles which consist of 5 or 6 dorsolateral, 4 or 5 dorsomedial, and 4 or 5 ventrolateral, the latter group sometimes restricted to the outer half. The apex with 2 lateral, 2 dorsal, 2 medial, and 6 ventral bristles. The tarsi are rather stout with the second to fifth segments beadlike. Middle femur with coarse, appressed, bristly pile and 5 anterodorsal bristles on the outer half, or sometimes only 2 bristles, and with 2 or 3 distal posterodorsal bristles. The middle tibia has conspicuous bristles consisting of 7 or 8 anterodorsal elements, the distal ones usually longer; it has also a few quite short porterodorsal and 8 to 10 longer posterior bristles, besides 4 or 5 quite long, ventral bristles.

Anterior femur and tibia quite similar to the middle pair. Anterior tibia with 6 or 7 short, sharp, anterodorsal and 4 similar posterodorsal bristles, and 7 or 8 posterolateral and 3 or 4 ventral bristles, these latter groups longer and usually of a different color. Subapex with a circlet of 7 or 8 bristles and no spine or protuberance. The tarsus, however, is a little more slender, especially on the basitarsus which is longer than the middle basitarsus. All 4 of the front tarsi bear subapically a circlet of stout, long bristles consisting of at least 2 anteriorly, 2 posteriorly, 2 dorsally, and 2 shorter ventral bristles. Claws slender, sharp, curved chiefly at the apex. Pulvilli well developed; empodium strongly swollen at the base and only half as long as the claw. In some species the middle tibia bears just beyond the middle a curious, dense, flattened brush of coarse, black and white pile. Also in some other species there tends to be at the apex of the anterior and middle femur a flangelike extension, especially on the anterior side, covered with a peculiar type of appressed pile.

Wings: The wings are hyaline or in part smoky, especially distally, or with the crossveins and the furcation of the third and fourth veins with diffuse, clouded spots. Marginal cell widely open, the second submarginal cell at base is expended almost entirely anteriorly and with little or no expansion behind the third vein. The anterior branch ends a little before the wing apex, the posterior branch ends nearly twice as far behind. First posterior cell open in maximal width. Second posterior cell often a little expanded, especially anteriorly. Upper section of anterior intercalary vein of varying length, always well developed and always much shorter than the rather strongly recurrent medial crossvein, which tends to parallel or nearly parallel the wing margin. Fourth posterior cell open but sometimes narrowed. Posterior crossvein present but short or almost wanting. Anal cell narrowly open. The anterior crossvein is nearly rectangular and enters the discal cell at the outer third or sometimes at the outer two-fifths. Ambient vein complete; alula well developed; villi present or greatly restricted.

Abdomen: The abdomen is robust, especially at the base, which is wider than the mesonotum and gradually tapering to the blunt, obtuse apex. The pile is rather abundant, except on the last three female segments and is fine, appressed, and setate or in part not setate. The lateral margins of the first three segments often have rather long tufts of very delicate pile which may be matted and appressed, or quite erect, and which may have also associated with it in some species coarse, shorter, bristly pile. The first segment is comparatively long and has 4 to 6 pairs of stout bristles with or without longer pile. First 4 sternites, and sometimes all the sternites, with copious, conspicuous, long, fine, pale pile. Males with eight segments, the eighth about half as long as the seventh and all segments slightly and progressively reduced in length; sometimes the last three segments are more conspicuously reduced. Females with eight segments, the eighth segment reduced and the character of the pile tends to be altered on the last three segments and greatly reduced. Males with the terminalia not rotate, the epandrium polished, characteristically turned downward into a blunt, posteriorly obtuse, or flattened structure and not cleft, although there may be a very shallow, posterior sulcus and a roughened medial area. Proctiger large with medial groove and apical notch and likewise turned downward. Hypandrium moderately long, laterally expanded at base, obtuse on either side of the apex and with considerable stiff pile. Gonopod well developed from the lateral aspect with a slender, ventral process and a wider, dorsal, more obtuse, thin process. Female with acanthophorites and 5 pairs of obtuse, spoonlike spines.

Heteropogon is an Holarctic genus of medium size. I have not seen the two species described from South Africa and cannot comment on them.

Distribution: Nearctic: *Heteropogon arizonensis* Wilcox (1941); *cirrhatus* Osten Sacken (1877); *currani* Pritchard (1935); *duncani* Wilcox (1941); *johnsoni* Back (1904); *lautus* Loew (1872); *ludius* Coquillett (1893); *macerinus* Walker (1849) [=*gibbus* Loew (1866)]; *maculinervis* James (1937); *patruelis* Coquillett (1893); *paurosomus* Pritchard (1935); *phoenicurus* Loew (1873); *rubidus* Coquillett (1893); *rubrifasciatus* Bromley (1931); *senilis* Bigot (1878); *spatulatus* Pritchard (1935); *vespoides* Bigot (1878); *wilcoxi* James (1934).

Neotropical: *Heteropogon eburneus* Walker (1849); *phalma* Walker (1849); *rejectus* Williston (1901).

Palaearctic: *Heteropogon alter* Becker (1915); *aurocinctus* Séguy (1934); *aureus* Becker (1907) [=*albibarbatus* Becker (1915)]; *biplex* Becker in Becker and Stein (1913); *elegans* Becker (1907); *erinaceus* Loew (1870); *filicornis* Loew (1870); *flavobarbatus* Becker (1907); *glabellus* Roeder (1881); [=*curviventris* Mik (1882)]; *hermanni* Engel (1930) [=*glabellus* Hermann (1905) not Roeder]; *lugubris* Hermann (1905); *manicatus* Meigen (1820); *manni* Loew (1954); *nubilis* Wiedemann in Meigen (1820) [=*brevis* Schiner (1868)]; *ornatipes* Loew (1851); *parvum* Efflatoun (1937); *pulchrum* Efflatoun (1937); *pyrinus* Hermann (1905); *rubiginipennis* Macquart (1849); *scoparius* Loew (1847); *succinctus* Loew (1847); *waltlii* Meigen (1820).

Ethiopian: *Heteropogon gracilis* Engel and Cuthbertson (1937); *peregrinus* Engel (1929).

Country unknown: *Heteropogon aegon* Walker (1849); *anemetus* Walker (1849); *cerretanus* Walker (1849); *copreus* Walker (1849); *potitus* Walker (1849); *silanus* Walker (1849).

See Ricardo (1912, p. 160) for her comments on these Walker species placed by Kertész in the genus *Heteropogon*.

Subgenus *Anisopogon* Loew

Anisopogon Loew, Berliner Ent. Zeitschr., vol. 18, p. 377, 1874. Type of subgenus: *Anisopogon glabellus* Roeder, 1881. Designated by Efflatoun, 1937.

While Engel (1930) considered the separation of *Anisopogon* from *Heteropogon* Loew untenable, Efflatoun has adopted the name as a useful basis for the separation of those species of *Heteropogon*, which are small, with the narrow, flat face bearing a sparse, weak mystax of soft hairs and at most 2 or 3 weak bristles or bristly hairs in the center. Style of third antennal segment much shorter than the third segment and less pointed. The position of the head is less ventral, the thorax relatively smaller, and the abdomen narrower and with longer, softer pile. Ventral proctiger of female long and boat-shaped. Efflatoun (1937) states that there are no spinelike processes at the apex of the terminalia but he has certainly had in mind the two Egyptian species which he described. Engel (1930) would restrict the name *Anisopogon* on the characteristics of the terminalia and ovipositor and would include in it only *Anisopogon hermanni* Engel and *glabellus* Roeder.

The following species have been assigned by dipterists to this subgenus: *Anisopogon hermanni* Engel, *erinaceus* Loew, *waltlii* Meigen, *rubiginipennis* Macquart and particularly *parvum* Efflatoun, *pulchrum* Efflatoun and the type of this subgenus, which is *glabellus* Roeder.

Genus *Mecynopus* Engel

FIGURES 112, 515, 1036, 1045, 1931

Mecynopus Engel, Konowia, vol. 4, p. 191, 1925. Type of genus: *Mecynopus pulverulentus* Engel, 1925, by original designation.

Small, slender flies with a rounded face which bears numerous, long, weak bristles or bristly hairs. These flies are related to the Nearctic genus *Metapogon* Coquillett and are separated by the reduced or absent pulvilli. Length 8 to 10 mm.

Head, lateral aspect: The head is moderately long, strongly convex anteriorly, and narrowed below. The occiput is unusually prominent and obliterated only at the immediate dorsal aspect of the head. The occipital pile is long, dense and fine. Upper occiput with 9 white bristles on each side, replaced by yellowish white pile at the upper eye corner. The proboscis is short, slightly compressed laterally, with the apex bluntly rounded and pilose; the base bears long pile ventrally. It is directed obliquely downward. The antenna is attached at the upper third of the head and is relatively slender. Its length, microsegment included, is a little greater than the length of the head. First and second segments of equal length, each longer than high and bearing quite long, stiff, bristly hairs below and above, other hairs only a little shorter. The third segment is at least as long as the first two combined, gradually and slightly dilated in the middle and bearing a single rather long, attenuate, spine-tipped microsegment. The attachment of this microsegment is only slightly oblique.

Head, anterior aspect: The face is wholly micropubescent, moderately wide, about one-fourth the head width and slightly divergent below. The front bears a few short hairs. Ocellar protuberance prominent but low, with numerous, long, fine hairs. Vertex very shallowly excavated.

Thorax: The mesonotum is comparatively convex, moderately high, steeply arched in front and pollinose; the pile is long, suberect and whitish. The mesonotum is characterized by the presence of a row of long, fine, backwardly curved acrostical bristles and a row of quite long, fine dorsocentral bristles beginning near the anterior margin and becoming slightly longer in front of the scutellum. These bristles are almost as long as those situated on the lateral margins. Humerus with long, fine pile; long, lateral bristles are present as follows: notopleuron with 5, supraalar with 2, postalar with 2 or 3, scutellar margin with 3 pairs which are long, slightly curved upward, and tending to be convergent. Collar with a few weak bristles and some pile, both of same length. Mesopleuron with only long, yellow pile dorsally and posteriorly; propleuron pilose; pteropleuron micropubescent only; metapleuron with a dorsal band of some long pile and 5 or 6 extremely weak, yellowish white bristles. Hypopleuron with a few long hairs. Metanotal slopes convex and micropubescent only. Postmetacoxal area membranous. Metasternal slopes laterally pilose.

Legs: The anterior and middle coxa with long, bushy, whitish pile anterolaterally; postcoxa pilose laterally. Hind femur distinctly longer than middle femur, moderately slender with long, appressed, yellowish white pile above and dorsolaterally; ventral surface with abundant, long, yellowish white pile, longer on the basal half and with 8 or 9 long, anteroventral, yellowish white bristles and an equal number of ventromedial bristles. The lateral bristles consist of 1 in the middle, 1 just beyond the middle, 1 near the outer third, and 2 very weak dorsoapical bristles scarcely stronger than the surrounding hairs. Tibia slender, with a slightly enlarged apex. The hind tibia has 6 dorsal, 5 lateral, 6 ventral bristles; its apex has long, yellowish white bristles, 2 lateral, 4 ventral, 2 dorsal and medial. Middle femur with long, erect pile below, appressed pile above and a weak subapical anterior bristle. Its tibia has long, yellowish white, rather stout bristles, 3 ventrals more or less posterior, all equally long and some long anteroventral pile; also this tibia bears some unusually long dorsal bristles, consisting of 5 anterodorsal and 5 posterior. Anterior femur with long, whitish pile posteriorly and ventrally, shorter posterior dorsal pile and shorter appressed pile anteriorly and dorsally. Anterior tibia with a double row of divergent, dorsal bristles, 5 in each row, and 5 longer posterior, and 3 or 4 long, ventral bristles. The apex of the anterior tibia bears 9 bristles and no terminal spine. Tarsi relatively slender with long, apical bristles; basitarsus with 1 small posterior bristle. Claws long, divergent, sharp and gently curved throughout. Pulvilli absent. Empodium two-thirds as long as claw, strongly thickened at the immediate base.

Wings: The marginal cell and all of the posterior cells are widely open; anal cell open. Ambient vein complete; alula narrow but convex.

Abdomen: The abdomen is nearly as wide as the thorax and fully as wide as the mesonotum; it is slightly convex on the first four or five tergites and all the sides are narrowly rolled. The abdomen is progressively narrowed from the end of the second tergite; it is wholly greyish yellow pollinose, except basally on the fifth and sixth tergites and the whole of the seventh and eighth tergites. Pile is short, fine, erect and delicate, longer along the lateral margins for the first four tergites and in tufts along the sides of these. In the female there are eight tergites, the eighth is about half as long as the seventh, both of them shining black, the others pollinose as described. Sublateral posterior border of the first tergite with 3 or 4 extremely weak bristles scarcely thicker than the surrounding hairs. Female terminalia quite short with a hemicirclet of 4 or 5 pairs of short, orange brown spines laterally, slightly protruded. Ventral plates divided and paired but short.

Distribution: Palaearctic: *Mecynopus pulverulentus* Engel (1925).

Genus *Hystrichopogon* Hermann

FIGURES 138, 569, 984, 993, 1765, 1767

Hystrichopogon Hermann, Berliner Ent. Zeitschr., vol. 50, p. 26, 1905. Type of genus: *Hystrichopogon hirticeps* Hermann, 1905, by original designation.

These are comparatively large flies with rather dense, fine pile. They have a rather hump-backed appearance because of the convex mesonotum and low-set head. The abdomen is stout but elongate. Face convex and produced with a subantennal crease and the eye comparatively small. Antenna unusually elongate, all segments lengthened and of nearly the same thickness; the third segment bears a dorsally short, ventrally extended microsegment and enclosed spine. Length 17 mm.

Head, lateral aspect: The head is comparatively long. Both the eyes and face are strongly produced and rounded. The face is strongly produced and convex. A short distance below the antenna the face is abruptly creased so that at this point it scarcely extends beyond the eye. The face descends well below the eyes, the lower one-fourth without pile. The antenna is set on a low protuberance and situated at the upper one-eighth of the head. The occiput in profile is swollen, thick and well developed except near the upper eye corner. Occipital pile chiefly yellow, the upper half of the occiput with 8 to 10 rather slender, moderately long, black, strongly proclinate bristles.

The proboscis is comparatively long but very stout basally; it bears a low medial ridge and is strongly tapered to a rounded point. Palpus with two segments, cylindrical, with dense, long, rather slender pile. The antenna is unusually long and slender, the three segments of equal thickness throughout; the apex of the third segment dorsoventrally bears a thinned, apical, scooplike extension with a stout spur, which in turn has an apical, short, slender spine. The dorsal, ventral and lateral margins of the first segment have numerous long, black bristly hairs. The second segment has shorter appressed black hairs; these are numerous above and a few laterally, none ventrally. The first segment is 1½ times as long as the second, the third segment nearly three times as long as the first segment.

Head, anterior aspect: The face is wide, slightly divergent below, with very numerous long, stiff hairs or weak bristles; on the upper portion these bristles extend forward but are slightly curved; on the lower part they are directed obliquely downward. On the sides of the front are 7 or 8 quite long, slender black hairs. Vertex not at all excavated. The ocellar protuberance is very low and bears several long, slender hairs.

Thorax: The thorax is moderately elevated and convex, abrupt anteriorly, and the hump-backed appearance is greatly accentuated by the head, with its short neck, set low upon the prothorax and directed somewhat downward; in its strong hump-backed appearance it much resembles the bombyliid *Eclimus* Loew. Mesonotum everywhere covered with abundant, fine, long, nearly erect pile; the humerus is pilose. On the mesonotum are weak, rather long, pale bristles, 7 notopleural, 10 supraalar, 10 postalar, and 40 prescutellar, 20 on each side and forming a wide band. The scutellar margin has 24 slender bristles; the disc is flattened and not pilose. Mesopleuron with 6 bristles and with additional, equally long, fine pile and with fine pile on the middle posterior border. Propleuron pilose, hypopleuron pilose dorsally, metapleuron with a broad band of numerous, long, pale hairs and weak yellow bristles. Slopes of metanotum without pile. Lateral metasternum with long, appressed pile; postmetacoxal area short and membranous.

Legs: The hind femur is only slightly elongate, moderately stout, with rather long, flat appressed pile dorsally and laterally and long, erect pile below in which there is a vertical, medial fringe of still longer, delicate hairs. The hind femur has a row of 5 moderately long, stiff, yellow, lateral bristles and a group of 3 dorsolateral elements at the apex, with 1 dorsomedial apical bristle. The hind tibia has similar pile but without long ventral hairs; its bristles are stout, pale, oblique, curved and consist of 5 dorsolateral, 4 dorsal, and 4 ventrolateral on the outer half; apex with 2 dorsal, 2 medial, 1 lateral, and 3 ventral bristles. Posterior basitarsus short, about as long as the next two segments; second to fourth segments beadlike and triangular. The middle femur has 4 weak, posterior bristles on the apical half, 3 anterior bristles at the apex; middle tibia with 6 long anterior, 6 dorsal, and 4 posterior bristles. Apex with 2 dorsal, 2 posterior, 2 anterior, and 2 ventral bristles. The anterior femur has short bristles at apex, 2 posterodorsal, 2 anterodorsal, and rather long, fine pile in front and behind. The anterior tibia has 5 anterodorsal, 5 posterodorsal, and 5 rather long posterior bristles; apex with 2 dorsal, 2 anterior, 2 ventral, and 2 posterior bristles; the anterior tibia without apical spine. Claws divergent, moderately long, sharply bent towards the apex and sharply pointed; pulvilli large, rectangular, nearly as long as the claw with bent nonribbed pad; empodium slender, half as long as the claw.

Wings: The marginal cell is widely open, the first vein tends to be arched at the apex. The anterior branch of the third vein has a distinct spur vein near its base. Fourth posterior cell narrowed to half, anal cell closed in the margin, second basal cell ends with three veins; alula rather narrow, the ambient vein complete.

Abdomen: The abdomen is stout but elongate, subcylindrical and slightly wider than thorax, and slightly shorter than the wings, but slightly tapering so that at the apex it is only a little narrowed. First tergite of the same width as abdomen, its sides with a vertical row of long, stiff, backwardly directed pile, among which are 7 or 8 weak bristles. The lateral third of the second tergite bears rather long, somewhat silky pile directed backward. Succeeding tergites with much shorter similar pile; dorsal pile short and subappressed. There are 6 well developed dorsal tergites; the seventh and eighth are quite short; in the male the eighth tergite is also visible but short. Sternites with long, bushy pile. Male terminalia conspicuous but not very long. Superior forceps well developed and gonopod large; aedeagus tubular. The gonopod appears to be fused basally below, the hypandrium absent or greatly reduced, or possibly fused with the gonopod.

Distribution: Palaearctic: *Hystrichopogon hirticeps* Hermann (1905).

Genus *Eucyrtopogon* Curran

Figures 92, 583, 968, 977

Eucyrtopogon Curran, Canadian Ent., vol. 55, p. 95, 1923. Type of genus: *Cyrtopogon nebulo* Osten Sacken, 1877, by original designation, as *Crytopogon, lapsus.*

Small to medium size flies, the crossvein and the fork of the third vein and middle of wing with small spots. The fork of the third vein lies opposite or slightly beyond the posterior crossvein or end of the discal cell; the anterior crossvein enters the discal cell at the middle or more often near the outer third of the discal cell. Very similar in general appearance to *Comantella* Curran, the mesonotum is usually without mane and the protibial apex never with a distinct spine. Mesonotum not compressed. In the males of a few species there may be a long, medial, loosely concentrated mane of bristles on the mesonotum; the face in these species may be a little more gibbous, the frontal and ocellar bristles longer and more numerous. Length 10 to 13 mm.

Head, lateral aspect: The head is of moderate length, the face short, gently convex beginning at the base of the antenna and less prominent than in *Comantella.* The occiput is similar to that genus, tumid, strongly developed in the middle and below and the posteroventral recession of the eye begins above the upper third of the head. The eye is shorter and in effect considerably higher than in *Comantella.* Occipital pile dense and long with weak bristles beginning at the upper fourth and usually consisting of 7 or 8 pairs. The proboscis is short, scarcely extending beyond the face; it is robust, plane below, rounded and punctate dorsally at the apex, and with a medial carina over the middle and base; it has numerous, long hairs ventrally on the basal half. Palpus small, of two segments; the first segment hemicylindrical and excavated, the second slender and cylindrical, with rather fine, long, bristly pile; the apex is bare and microporate. Antenna attached near the middle of the head, not quite as long as the head, the first two segments short and subequal. The third segment is widest at the base, rather strongly attenuate, with two slender microsegments; the first is short, the second long and tapered, with apical spine. These two microsegments combined are nearly as long as the third segment.

Head, anterior aspect: The head is wide, the face quite wide; below the antenna the face is nearly one-third the head width, and moderately divergent below. Face pubescent with some fine, long pile and with numerous, long, slender bristles especially on the lower half. The epistomal bristles are poorly developed. Subepistomal area moderately large and nearly horizontal. The front is flat, pollinose with a tuft of long hairs along each eye margin near the vertex. First and second antennal segments with long, coarse hairs above, laterally, and below and 1 or 2 long bristly hairs at the apex of the second segment. Vertex moderately excavated, the ocellarium large, the sides of the vertex with dense, long, fine pile; the anterior portion of the ocellarium has similar pile and on its posterior half it has 3 or 4 pairs of long, slender, distinct bristles. Anterior eye facets strongly enlarged.

Thorax: The thorax is pollinose, the mesonotum with abundant, long, bristly but slender pile; acrostical and anterior dorsocentral pile is not differentiated. On the posterior half is a band of slender, long, dorsocentral bristles; humerus pilose only. Lateral bristles present as follows: 3 stout notopleural, 3 or 4 weak supraalar, a like number of postalar, the scutellum with 5 or 6 pairs of long, slender bristles, and its disc densely long pilose. The metapleuron has a wide, vertical band of long, attenuate, apically twisted, slender bristles. Propleuron, posterior and dorsal mesopleuron with abundant, long, quite fine pile. A small, similar tuft of pile on the upper sternopleuron; the metasternum with long pile; postmetacoxal area membranous Prosternum dissociated.

Legs: The legs are stout without being at all swollen, but not as stout as in *Comantella.* All the femora, especially the hind pair with unusually dense, long, fine pile. On the hind femur the pile is especially long towards the base; its dorsomedial pile is short and appressed. Anterior femur with rather long, posterior pile. Bristles absent on all the femora. Ventral and posterior pile of the tibiae is long and exceptionally fine at the apices of the hairs. Tibial bristles prominent, long, attenuate, basally stout. Hind tibia with anterior and dorsal rows, each with 5 elements and 4 or 5 ventral bristles; a similar number is present on the remaining tibiae. Anterior tibia with at least posterior rows of bristles, a posterodorsal row, and 7 or 8 short anterodorsal bristles. Protibial apex with only ordinary, stout bristles and no spine. Claws slender, sharp, strongly curved from the middle. The pulvilli well developed, empodium swollen at the base.

Wings: The marginal cell is widely open; second submarginal cell long and slender, fork of the third vein opposite or slightly before the posterior crossvein. All posterior cells widely open. Anal cell narrowly open or closed. Alula short; ambient vein complete. Veins often tinged with gray or black and furcations or cross veins with a bluish spot.

Abdomen: The abdomen is at least as wide as the mesonotum and with long, fine, abundant pile narrowly restricted to the lateral margins except in males, where it is apt to extend over at least the lateral third of each tergite. Medial pile short, scanty, subappressed, generally fine, but sometimes setate on the basal half of the female abdomen. Males with seven well developed tergites and a short liplike eighth tergite. Females with eight tergites, the last tergites are long and well developed. Male terminalia rather short and inconspicuous, rotate from one-fourth to one-half; the epandrium is cleft to the base and narrowly separated but each half is triangular and short. Gonopod also triangular, of about the same size as each half of the epandrium. The hypandrium is wide and rather long, more or less flattened and convex around the edges and leaving the cavity of the terminalia largely exposed. The female terminalia bear 5 or 6 long, stout, apically blunt, spoonlike spines on each acanthophorite.

Distribution: Nearctic: *Eucyrtopogon albibarbis* Curran (1923); *calcarata* Curran (1923); *comantis* Curran (1923); *diversipilosis* Curran (1923); *kelloggi* Wilcox (1936); *maculosus* Coquillett (1904); *nebulo* Osten Sacken (1877); *nigripes* Jones (1907); *punctipennis* Melander (1923); *spinigera* Curran (1923); *varipennis* Coquillett (1904).

Sintoria, new genus

Type of genus: *Sintoria emeralda*, new species.

Small flies of moderately stout abdomen and stout legs. The mesonotum is rather distinctly arched both anteriorly and posteriorly and bears only dense, long, shaggy pile on the posterior half of the mesonotum. Related to *Eucyrtopogon* Curran and *Holopogon* Loew; the face is actually plane, except for an abrupt extension immediately below the antenna; third antennal segment a little wider on the apical half and not attenuate from the base; midtibial apex without a pair of contrasting, stout bristles. Scutellar disc with much fine pile, the margin with only fine, long hairs. Wings hyaline, the anterior crossvein at the middle of the discal cell, the anal cell quite widely open. Length 9 mm.

Head, lateral aspect: The eye is as convex posteriorly as anteriorly, occiput very little developed, a little more prominent below. The face is short, of about the same extent above and below. It juts forward immediately above the antenna and is nearly straight in profile. Proboscis unusually robust and stout and while it is rather short it extends distinctly beyond the face. Lower surface of proboscis plane, dorsal apex broadly rounded, with a prominent dorsal keel. Palpus of two segments. Antenna attached to upper third of head and about as long as the head. First segment shorter than the second, bare, polished with 3 moderately long, slender and 3 shorter, bristly hairs below and 7 setae above. Second segment with 1 somewhat longer, stout bristle, 2 shorter more slender bristles below and 6 setae above. Third segment, excluding microsegment, 1½ times the combined length of the first two. In lateral aspect this segment is wider on the outer half. The two microsegments are short, especially the first one, stout and robust. The second sharply attenuate with a bristle at the tip.

Head, anterior aspect: Face below antenna a fourth the head width, the eyes anteriorly flattened and the medial facets quite greatly enlarged, and likewise flattened. The face widens a little below and bears, beginning almost immediately beneath the antenna, abundant, long, coarse, bristly pile, which might be described possibly as very slender, weak bristles. Lower elements of the mystax slightly longer but no thicker than the upper ones. Front of about the same width throughout, at most very slightly widened uniformly from antenna to vertex. Vertex a little excavated, the ocellarium large with vertical sides. Anterior ocellus enlarged with several interocellar hairs. Sides of front with a row of some 6 or 7 long, slender hairs.

Thorax: The thorax is rather strongly raised and convex equally in front and behind, and somewhat laterally compressed. Also, anteriorly between humerus and the middle of the mesonotum is a very shallow and granulate depression. There is a double row of acrostical, moderately long, curved hairs. Dorsocentral elements are not differentiated from those to one side, although behind the suture the whole posterior mesonotum bears dense, long, coarse, golden, suberect, slightly crinkled pile, and similar pile is found plentifully on the disc of the scutellum. Scutellar margin with only 5 or 6 pairs of long, stiff hairs. Metanotum with pubescence only. Metapleuron with a wide patch of slender, long bristles. Pleuron coarsely micropubescent with a band of fine, long hairs as on the posterior margin of the mesopleuron. Lateral margins of the mesonotum with quite weak bristles, 2 on the notopleuron and several bristly hairs on the postalar callosity. The mesopleuron is bare, except for sparse, pollenlike micropubescence laterally, and coarse, appressed micropubescence anteriorly on the depressed area and on the humerus. Humerus with numerous, long hairs.

Legs: All the femora are a little swollen, shining and metallic green. The bristles are absent, the pile is mostly erect, fine, abundant, long along the ventral surface of all the femora and rather narrowly appressed along the dorsal surface of the hind femur, less so on the middle femur. The hind tibia is rather exceptionally stout, almost as much so as the hind femur. All the tarsi, however, moderately narrow, neither slender nor swollen, including hind basitarsus. The basal segment of the hind tarsus is longer than the next three, each of which are beadlike. Pile of hind tibia rather abundant but scattered and bristly for the most part. The medial surface beyond the base bears an unusually dense brush of suberect, bristly pile. The hind tibia has 8 slender bristles, partly in 2 rows and 3 rather stout, lateral bristles, which are tuberculate, and a number of slender bristles and 1 stout bristle ventrally. Middle tibia with the anterodorsal and the ventral bristle only well devolped and 4 to 6 in each row. Apex of this tibia with short, stout bristles, but without especially contrasted, medial bristles. Anterior tibia with poorly developed bristles posteroventrally only, but with numerous, coarse, short, bristly hairs which are subappressed. This tibia has an extensive, medial band of appressed, dense setae. Apex without spine. The claws are strongly bent toward apex, sharp, the pulvilli large and long.

Wings: The wings are pale brownish hyaline and iridescent. Marginal cell and all posterior cells quite widely open. Anal cell unusually widely open. Posterior crossvein long. Anterior crossvein enters the discal cell at the middle. Third vein branches at or slightly before the middle of the discal cell. Ambient vein complete. Whole wing microvillose. Posterior fringe long and in one row. Alula moderately deep.

Abdomen: The abdomen is a little wider toward the base than the mesonotum, tapered beyond the fourth segment. Second to fourth segments of nearly equal length. Abdomen polished, shining, bottle-green, or green as in a *Lucilia* blowfly. Posterior margins on the lateral fourth or fifth of each segment grey pollinose, except the last two, but of greatly reduced extent on the first and sixth segments. Pile erect, short, fine and pale. Males with prominent terminalia, the epandrium large and triangular, with a tiny notch at apex and with a crease running to the base which seems not to be divided. Gonopods quite large and convex. Hypandrium also prominent and ventrally convex. Females with 5 pairs of short, rounded spines on the acanthophorites.

Distribution: Neotropical: *Sintoria emeralda*, new species.

Sintoria emeralda, new species

A species rather readily recognized by the dark blue-green reflection on the sides of the mesonotum and the bottle-green color of the abdomen in the male, and on the sides of the female abdomen; middle of female abdomen tends to be more violaceous. Length 9 mm.

Male. Head: The head is black with thin, greyish or brownish yellow pollen or micropubescence on the front and face, which does not obscure the ground color or the slightly greenish reflection. Pile and bristly hairs of the face light yellow. Antenna black with the bristly hairs dark reddish brown. The pollen of the third segment reddish brown.

Thorax: The thorax is shining bluish to greenish black with pale brownish yellow pollen and micropubescence and pile of the same color, which, however, becomes somewhat reddish down the middle of the mesonotum and quite golden on the posterior part of the mesonotum. All this posterior part of the mesonotum and most of the lateral mesonotum, except the margin, is bare and shining.

Legs: The legs everywhere metallic, shining green or greenish black. The pile and bristles uniformly brownish yellow.

Wings: The wings are distinctly tinged with brown, but not at all dark in color. Anterior veins light reddish brown, other veins darker.

Abdomen: The abdomen in the male is shining green with greyish white pubescence in the posterior and lateral corners. Female with abdomen becoming more or less coppery or violaceous in the middle but green laterally. Posterior spines of female dark red. Pile of both sexes pale yellow to whitish.

Type: Male, Nepantla, Mexico, October 28, 1923, E. G. Smith; allotype, female, La Cascada, Mexico, October 28, 1922, E. G. Smith. In the U.S. National Museum.

Genus *Itolia* Wilcox

FIGURES 70, 593, 989, 998, 1832, 1833, 1954

Itolia Wilcox, Pan-Pacific Ent., vol. 12, p. 201, 1936. Type of genus: *Itolia maculata* Wilcox, 1936, by original designation.

Small flies at once characterized by the reduction of the posterior cells to four, the bare, partly pollinose, partly shining aspect and the rather humped appearance of the mesonotum. Head longer below than above, the anterior eye facets unusually large. Length 4 to 8 mm.

Head, lateral aspect: The head is short, especially above, the length greater below and accentuated by the more prominent ventral development of the occiput. The occiput rapidly rises at the eye margin to reach its maximum thickness near the eye. Face quite short and barely visible in profile even below. Pile of occiput fine, weak bristles are present submarginally, beginning near the middle of the head. The proboscis is small, cylindroid, bluntly pointed, tapered only at the immediate apex, and does not extend beyond the face. Palpus of two segments, but small and inconspicuous; the second segment is slender, cylindrical, with apically directed tuft of bristles at the apex. The antenna is attached a little above the middle of the head and approximately as long as the head or a little shorter. First and second segments short, subequal. The third segment is 2½ to 3 times as long as the combined length of the first two, gently attenuate from its base and bearing two microsegments, the first microsegment small, the second several times longer with a distinct apical spine. First and second segments bear weak bristles ventrally at the apex.

Head, anterior aspect: The head is wide, flattened anteriorly, considerably wider than the thorax. The face below antenna is about one-fifth the head width, sometimes a little more or a little less. The face below and the front above is slightly divergent. The face appears to be pubescent, but is densely covered with short, flat appressed, slightly flattened, silvery pile. Bristles and longer pile are restricted to the epistomal margin where there is a narrow band extending diagonally downward, somewhat tectiform, above the proboscis, and matching the color of the pubescence. Front is flat, clothed like the face, without long pile or bristles. The ocellarium is prominent with nearly vertical sides and several short hairs between the ocelli. The anterior ocellus greatly enlarged.

Thorax: The mesonotum is comparatively high and strongly arched posteriorly and more so anteriorly. Generally there is a medial stripe and a large triangular area laterally which is polished and bare; small areas of the pleuron are similar. All the remainder of the thorax is densely, coarsely, appressed pubescent with pile restricted to a few fine, scattered hairs. An acrostical row of bristles is present and dorsocentral bristles though weak are differentiated at a point a short distance behind the humerus. All the lateral bristles are quite weak, and consist of no humeral, 2 notopleural, 1 or 2 supraalar, 1 or 2 postalar, and no scutellar bristles. Scutellar margin with or without a few weak hairs, the disc bare. Propleuron with abundant, weak pile; the entire dorsal surface and posterior half of the mesopleuron, the lateral and ventral metasternum with abundant, long, fine pile. Metapleuron with a vertical band of numerous, fine, apically crinkled hairs. Metanotum with micropubescence only. Some of these elements and some of those on the mesopleuron might be regarded as weak bristles. Postmetacoxal area membranous. Prosternum dissociated.

Legs: The femora are moderately stout without being swollen; they bear fine, appressed pile; the ventral surface, especially on the hind pair has a fringe of erect, fine pile and several much longer, slender hairs. Bristles absent. Tibiae with similar pile and very weak bristles. The posterior tibia has 5 or 6 such elements ventrolaterally. Middle tibia with short bristles posterodorsally, 4 rather long, attenuate, anterodorsal bristles and 3 or 4 long, ventral bristles. The posteroventral bristles of the anterior tibia are long but slender. All bristles and pile of the legs pale. Protibia is without spine. Claws are fine, sharp; the pulvilli long; the empodium fine.

Wings: The marginal cell is quite widely open. The posterior branch of the third vein ends behind the wing apex. First posterior cell is widely open, second posterior cell absent. Fourth posterior cell is closed and its stalk evanescent. The anal cell is similar.

Abdomen: The abdomen is broad at the base and nearly as wide as the mesonotum, comparatively short, strongly convex from side to side dorsally. The abdomen is polished and bare for the most part with pale pubescent bands, sometimes restricted to the first two or three tergites and sometimes, where present, covering the whole of the lateral margin, and more or less interrupted medially. The pile is quite fine and scanty except on the sides of the first tergite where there are some long, slender bristles and long, coarse hairs and also upon the terminalia where the long, coarse hairs, though scattered, are much in evidence. Males with seven tergites, the last only half as long as the sixth; the females with eight tergites, the last also reduced to half the length of the preceding segment. Male terminalia exceptionally large, elongate, cuplike, the appendages thin but wide and lengthened. The epandrium has become divided apparently into two very widely separated halves, forming the superior forceps. The intervening area, apart from the proctiger, is membranous. Gonopod is most prominent; the hypandrium is a small, narrow piece closely set against the adjacent gonopod and only half as long. The female has acanthophorites, each with 3 or 4 long spines; ventral plate divided apically and apposed, the terminal portion pinched together and boatlike.

Distribution: Nearctic: *Itolia atripes* Wilcox (1949); *maculata* Wilcox (1936); *timberlakei* Wilcox (1949).

Genus *Wilcoxia* James

FIGURES 82, 585, 971, 980

Wilcoxia James, Journ. Kansas Ent. Soc., vol. 14, p. 38, 1941. Type of genus: *Wilcoxia cinerea* James, 1941, by original designation.

Small, rather slender flies, pollinose, with short, inconspicuous, gently rounded face, long antennal microsegments. There is a stout, spinous bristle at the apex of the middle tibia, somewhat turned backwards, and no spine on the protibia. Length 6½ to 9 mm.

Head, anterior aspect: The head is short, the face extremely short and not visible in profile beneath the antenna, and only shortly visible along the middle and below. It is gently curved and tends to follow the eye margins to some extent. The vertex is prominent in the middle and below due partly to the posteroventral recession of the eye, which begins above the middle of the head. The occipital pile is delicate and rather abundant. There are 5 or 6 pairs of very weak, short bristles above and a postvertical tuft of 3 on each side. The proboscis is unusually stout basally and quite short, not extending beyond the face, its apex blunt. Palpus small, of two segments, the first quite small and more or less fused. The antenna is attached slightly above the middle of the head; the first two segments short, the second beadlike; the third is of nearly the same width as the second for most of its length and slightly tapered distally. It bears two microsegments; the first is small, the second rather long, of the same width, slightly bent downward, and with a distinct spine at the apex. First segment with a weak bristle ventrally, second with 2 stronger bristles.

Head, anterior aspect: Head is distinctly wider than the thorax, the face narrow below the antenna, a little less than a fifth of the head width, and rather strongly divergent below. Face pubescent, with 5 or 6 fine hairs on the upper half, and down the middle of the ventral half 6 or more long, delicate, bristly hairs, sometimes arranged in 3 transverse rows of 2 each. There are also a few long, fine hairs above the epistoma and along the subepistomal lateral margin; subepistoma moderately large and oblique. Front flat, pollinose, with 3 or 4 fine hairs laterally, its sides are almost parallel; the vertex is only moderately excavated, but the ocellarium is prominent with vertical sides, and bearing several hairs and 2 or 3 bristly hairs, besides 3 additional pairs behind the ocelli. Anterior eye facets rather strongly enlarged.

Thorax: The mesonotum is rather convex and moderately hump-backed, densely pollinose or micropubescent with fine, scanty, reduced pile. There are a few acrostical bristles present, 1 or 2 dorsocentral bristles before the suture, and behind the suture 3 or 4 which are longer. Humerus with a tuft of long, stiff hairs. The lateral complement of bristles is 2 notopleural, 1 supraalar, 1 postalar, and 3 or 4 pairs of weak scutellar bristles. Scutellum convex, pollinose, with a few fine long hairs. Propleuron with some fine, long pile. Metapleuron with a prominent, vertical band of long, slender bristles; remainder of pleuron pollinose or pubescent. Metanotum micropubescent only. Lateral and ventral metasternum pilose, the postmetacoxal area membranous. Prosternum dissociated.

Legs: The femora are rather slender, the anterior pair a little thickened towards the base. They have only appressed, scanty pile and long, bristly hairs. The apex of the hind femur has 2 or 3 weak bristles on each side dorsally. Some 4 or 5 of the exceptionally long, ventral hairs on this femur might be considered weak bristles. Anterior femur with abundant, long, fine pile posteriorly and ventrally. Middle femur with somewhat shorter, similar pile. Tibial pile fine and subappressed; the bristles are mostly slender. Hind tibia with 5 weak bristles dorsally, 2 on the outer half are longer, with 2 well developed lateral and 2 similar ventrolateral bristles. Middle tibia with 5 anterodorsal bristles becoming progressively longer; the last 2 are stout, with 3 or 4 posterodorsal, 6 posteroventral and 3 prominent, long, stout, ventral bristles. On the anterior tibia 3 or 4 short, posterodorsal bristles and 3 quite prominent, posteroventral bristles; apex without spine. All tibiae and tarsi are slender, the tarsi elongate, the claws fine and sharp, the pulvilli long and slender, the empodium short and slender.

Wings: The wings are immaculate; marginal cell very widely open. The anterior branch of the third vein ends at the wing apex. The fork of the third vein is situated a little beyond the posterior crossvein. Anterior crossvein rectangular, placed at outer fourth of discal cell. Middle end vein of second basal cell is long. All of the posterior cells and the anal cell widely open.

Abdomen: The abdomen is moderately long, convex, with only slightly tapered sides; at the base not quite as wide as the mesonotum. Abdomen pollinose with some bare spots, the pile fine, scanty and appressed, except on the sides of the segments where there are scattered, fine, erect, long hairs on the first four tergites. First tergite with a few long bristly hairs. Males with only seven tergites, this last being well developed. Females with eight tergites, the last two reduced, the eighth half as long as the seventh. Males with the terminalia quite short and obtuse; as they are more reduced ventrally they present a somewhat oblique appearance in lateral aspect. The epandrium is completely divided and separated, each lateral lobe short; proctiger small and short. The gonopod is well developed but thrust obliquely upward from its lateral portion. Hypandrium well developed, sloping upward. Acanthophorites with 4 or 5 pairs of slender spines.

Distribution: Nearctic: *Wilcoxia cinerea* James (1941).

Genus *Backomyia* Wilcox and Martin

FIGURES 145, 584, 972, 981

Backomyia Wilcox and Martin, Journ. Kansas Ent. Soc., vol. 30, p. 1, 1957. Type of genus: *Eucyrtopogon limpidipennis* Wilcox, 1936, by original designation.

Small flies of blackish color, related to *Wilcoxia* James, *Eucyrtopogon* Curran, and *Metapogon* Coquillett. At the apex the middle tibia bears a pair of anterior, straight, spinous bristles, one of which is usually black. The presence of long, slender bristles or bristly hairs or both on the margin of the gently convex scutellum separates these flies from *Metapogon* and *Wilcoxia*. Length 5 to 8 mm.

Head, lateral aspect: The face is only moderately produced and is gently rounded over its whole extent, retreating on its lower margin and with quite small, nearly horizontal subepistoma. The occiput is prominent in the middle and especially on the longer third of the head, due to the strong, anteroventral recession of the eye. It bears abundant, fine, long pile below with a few weak bristles on the upper half. Proboscis short, robust, not extended beyond the face with an anteriorly directed circlet of apical hairs and a few fine, ventral hairs below the base. Palpus of two segments, small, quite slender and cylindrical. The antenna is attached at the middle of the head or slightly longer. The first two segments are short and robust, the first segment longer than the second and the first segment ventrally with 2 to 4 stout, long, distinctly obtuse bristles; the second segment has 1 or 2 similar bristles. Third segment more slender than the second, attenuate, 1½ times as long as the first two segments combined, microsegments excluded. The first microsegment is quite short, distinct and the second is more than half the length of the third segment.

Head, anterior aspect: The head is of medium width, the face below the antenna is a little more than a fifth the head width, rather strongly widened below. It bears dense, loose micropubescence and numerous, long, slender, bristly hairs which begin on the upper face a distance from the antenna of approximately equal to the width of the first segment. Front widened and the vertex nearly as wide as the lower face. Surface of front densely pollinose, the eye margins narrowly bordered with quite long, stiff hairs. Vertex only moderately excavated; the ocellarium is large, not high, with vertical sides and between the posterior ocelli is a pair of long, slender bristles, a pair behind, sometimes weaker, and several pairs of long, bristly hairs on the anterior portion of the ocellarium.

Thorax: The thorax is comparatively short, with moderately high mesonotum which is rather strongly arched. It bears numerous, long, stiff or bristly hairs undifferentiated and the lateral bristles are long and comparatively slender. There are 2 or 3 notopleural bristles, 1 supraalar, 1 or 2 on the postalar callosity, and the scutellar margin has 3 pairs of bristles. Surface of mesonotum and the slightly convex scutellum pollinose. Humerus with bristly hairs, metanotum laterally with pollen only. Pronotum and propleuron with abundant, fine pile. Metapleuron with 4 long, slender, anterodorsal bristles and behind with a row of more numerous, slender, bristly hairs. The anterior elements are sometimes black. Postmetacoxal area membranous; lateral and ventral metasternum pilose; prosternum dissociated.

Legs: The femora are stout without being swollen and they bear abundant, long, fine pile with weak bristles restricted to the apex. Hind femur with 3 lateral apical and 1 dorsolateral apical bristle and 1 or 2 weaker dorsomedial apical bristles. Only the dorsal surface has short, appressed setae. Anterior and middle femora similar, the apical bristles being much weaker in character and on the anterior femur restricted to the front. Hind tibia with 3 dorsolateral and 2 distal dorsomedial bristles besides 3 ventrolateral bristles on the outer half and also a ventral, medial and anterior fringe of a few, long hairs restricted chiefly to the basal half. These fringes of bristly hairs become very prominent on the anterior and middle legs, especially on the anterior and middle surfaces of the posterior tibia; its posterior surface bears 12 such hairs in the male of *Backomyia limpidipennis*. In females they are fewer in number and less conspicuous and they are also fewer in some other species. Middle tibia with 3 moderately stout, anterodorsal bristles and 2 distal and 2 or 3 more slender, basal bristles. Apex of middle tibia with a stout, spikelike, straight, anterior bristle, or spine. On the anterior tibia there are 2 or 3 short, anterodorsal bristles on the outer third and sometimes near the base there are 1 or 2 long, slender hairs. The posterodorsal row contains 4 or 5 slender bristles, stronger on the outer half. Apex without spine but with several long, stout bristles. Claws slender, sharp, bent at the apex; pulvilli long; empodium slender.

Wings: The wings are hyaline with weak, diffuse, brown spots on the crossveins and furcations which sometimes may be nearly absent. Marginal cell widely open, all posterior cells and anal cells widely open, third vein branched opposite, before or barely beyond the end of the discal cell. Alula quite narrow; ambient vein complete, the anterior crossvein enters the discal cell at the distal third or distal fourth of the discal cell.

Abdomen: The abdomen at the base is as wide as the mesonotum but tapering beyond the first segment. It is comparatively bare, feebly shining black, with pollinose spots or bands on the base of the segments. The pile is scanty, very fine, setate and suberect but becomes longer and erect on the sides of the tergites, especially the first three tergites. Sides of first tergite with 3 to 5 weak bristles and with additional long, stiff hairs. Males with seven tergites, the seventh is less than half as long as the sixth or even reduced to a linear trace. Females with eight tergites, the last two each about half as long as the sixth. Male terminalia rotate and comparatively short. The epandrium is cleft to the base with sides apposed or in some species there may be a wide V-shaped notch or sulcus reaching only to the basal third in which is enclosed the dorsal proctiger. Hypandrium quite short, or of moderate length. Gonopod wide at the base but short and rather strongly narrowed and pronglike distally. Females with acanthophorites and 4 pairs of short spines.

Distribution: Nearctic: *Backomyia anomalus* Wilcox and Martin (1957); *hannai* Wilcox and Martin (1957): *limpidipennis* Wilcox (1936); *schlingeri* Wilcox and Martin (1957).

Genus *Metapogon* Coquillett

Figures 124, 570, 987, 996

Metapogon Coquillett, Proc. Ent. Soc. Washington, vol. 6, p. 181, 1904. Type of genus: *Metapogon gilvipes* Coquillett, 1904, by original designation.

Small flies of dark color, comparatively slender form, pollinose, with short, fine, scanty pile and prominent bristles. They will be recognized by the high, arched, somewhat compressed mesonotum, with conspicuous, long, dorsocentral bristles and prominent acrostical bristles, and the presence of a stump vein from the obtuse base of the second submarginal cell. At least 1 pair of scutellar bristles is present, the ocellarium with 2 or 3 pairs of long, stout bristles, the short, gently convex face with numerous bristles below. Protibial apex without spine. Length 8 to 10 mm.

Head, lateral aspect: The head is of medium length, the face at the antenna is nearly plane with the eye, gradually becoming more prominent below, its apparent length accentuated by the recession of the eye. The occiput is moderately prominent, except at the immediate vertex and on all sides it slopes rather strongly away from the eye, becoming most prominent near the outer fourth of the head. The occipital pile below is dense, exceptionally fine and twisted; stout bristles begin at the middle of the head and consist of 10 pairs with an additional row of 4 bristles on each side of the postvertex. The proboscis is short, robust, a little tapered, the apex blunt; the dorsal carina over the middle is high and the apical third below has bristly hair. The palpus is rather large, of two segments; the first is short and excavated, the second is long, cylindrical, attenuate, porate, and without apical pile. The antenna is attached a little above the middle of the head, about the same length as the head and slender. The first two segments are short, the first robust, the second beadlike; the first bears 2 to 3 stout, long bristles below, the second has only 1 and both with stiff long setae above. Third segment narrow, 1½ times as long as the first two segments combined, a little attenuate at the apex and with two microsegments, the first microsegment short, the second microsegment is long with spine at tip and bent downward.

Head, anterior aspect: The head is a little wider than the thorax, the face wide, at least two-fifths the head width. The face is pubescent with abundant, long, stiff pile on the upper two-thirds and a few weak bristles; below on the receding ventral portion are numerous, long, slender bristles. Subepistomal area large, oblique, plane or slightly convex. Front pollinose, wide, very slightly divergent with a few stiff hairs on either side. The vertex is moderately excavated, the ocellarium is exceptionally large with nearly vertical sides and with 2 to 3 pairs of conspicuous, stout, long bristles and sometimes additional bristly hair on the anterior and posterior parts.

Thorax: The mesonotum is exceptionally high and strongly arched anteriorly and posteriorly; the middle anterior portion tends to be laterally compressed, the whole pollinose, the sides thinly beset with fine, erect, rather long bristly pile. The mesonotum has a distinct, double row of long, slender, acrostical bristles and a row of still longer, sharp, stout, dorsocentral bristles, all curled backwards; there are 6 pairs in front of the suture and 5 or 6 pairs behind. The suture is placed unusually far to the rear. Humerus with fine pile. The lateral complement of bristles includes 2 notopleural, 1 supraalar, 1 postalar, and 1 stout and 2 very slender pairs of scutellar bristles. Scutellum convex, coarsely pubescent, with scattered fine pile. Metanotum micropubescent only. Only the metapleuron with bristles, containing a wide vertical band of numerous slender elements, wispy at apex. Whole of the propleuron with fine pile and no bristles; remainder of pleuron micropubescent and without pile. Prosternum dissociated. Metasternum pilose, laterally and below. Postmetacoxal area membranous.

Legs: All the femora are stout, a little swollen before the middle; the pile is dense, rather fine and appressed dorsally, laterally and anteriorly with long, ventral fringes of fine, bristly hairs posteroventrally and anteroventrally on all pairs. Posterior coxa with a strong anterior process. Bristles of the legs are stout basally, attenuate, most prominent on the middle tibia and few in number on the femora. Hind femur with 4 or 5 conspicuous, dorsolateral bristles and 2 others at the apex, and weaker ones medially at the apex. Middle femur with 2 anterior bristles on the outer fourth, 2 at the apex, and 1 posteriorly at the apex, besides several anterior, long, bristly hairs. Anterior femur with numerous, long, posterior, bristly hairs, similar dorsal hairs and with 2 stout, posterodorsal, subapical bristles. Hind tibia with 5 dorsomedial, 3 dorsolateral and 3 ventrolateral bristles, the latter restricted to the lateral half. Middle tibia with 4 anterodorsal, 3 or 4 posterodorsal, 5 or 6 posteroventral, 4 long, stout, ventral bristles which begin near the base, and 2 stout, distal anteroventral bristles. Apex of midtibia with 2 stout, spikelike, ventral bristles. Apex of protibia without spines. Claws slender, sharp; pulvilli long and slender, empodium long and quite slender.

Wings: The wings are slender, the marginal cell is widely open; base of second submarginal cell has a characteristic spur; all posterior cells widely open, the rectangular anterior crossvein enters the discal cell at the middle; the third vein forks at or before the posterior crossvein, end veins of the discal cell of equal length. Anal cell open. The second basal cell ends in 3 veins. Alula short, ambient vein complete. Wings with spots on the crossveins and at forks.

Abdomen: The abdomen is cylindroid, slightly tapered at the base and nearly as wide as the mesonotum. The pile is fine, scanty and appressed, the surface pollinose. Males with seven tergites only; the seventh is from a third to half as long as the sixth. Females with eight tergites, the eighth half as long as the seventh. Male terminalia quite short and obtuse; epandrium cleft and the lateral lobes rather widely flared or divergent; proctiger small and short. As in *Wilcoxia* James, the gonopod is thrust obliquely upward and is well developed. Hypandrium prominent and curving upward. The female bears acanthophorites, each of which have 4 long spines.

Distribution: Nearctic: *Metapogon albulus* Melander (1923); *gibber* Williston (1884); *gilvipes* Coquillett (1904); *pictus* Cole (1916); *punctipennis* Coquillett (1904).

Neotropical: *Metapogon incertus* Becker (1919).

Genus *Ablautus* Loew

Figures 141, 540, 1050, 1059, 1795, 1800

Ablautus Loew, Berliner Ent. Zeitschr., vol. 10, p. 37, 1866. Type of genus: *Ablautus trifarius* Loew, 1866, by monotypy.
Ablautatus Loew, Berliner Ent. Zeitschr., vol. 18, p. 377, 1874, *lapsus*.

Small to medium size and rather slender, mostly pale colored flies. The abdomen is robust basally, rather short and tapered. They are readily recognized by the long, slender claws, the absence of pulvilli and the long, coarse, opaque, pale and often flattened pile. The legs are very bristly, the surface pollinose. The face has a dense, matted mystax, the head broad with the front and vertex a little widened. Finally the humerus has bristles and all of the posterior cells of the wing are open, usually the anal cell as well. Length 6 to 12 mm.

Head, lateral aspect: The face is very short, plane with the eye on most of its length; the lower visible portion is due to the recession of the eye, the face is short, rounded, and receding ventrally. The eye is strongly flattened anteriorly, considerably narrowed ventrally, due largely to the conspicuous anteroventral, recession of the eye, which begins near the vertex leaving the naturally thick and tumid occiput greatly exposed over most of its length. The pile of the occiput is abundant, extremely long and delicate, replaced by bristles only on the upper third, where there are 7 pairs, on the outer part of the occiput and some 10 pairs irregularly placed behind the upper medial portion of the head. From the dorsal aspect the vertex is greatly excavated posterolaterally. Proboscis of medium length and thickness, extending a short distance beyond the face; it is slightly tapered from the dorsal aspect, less so from the lateral view with the apex either pointed or bluntly rounded and with a well developed dorsal ridge extending over the middle but disappearing at base and apex. Apex with only a few minute hairs. The proboscis tends to be extended chiefly forward horizontally or slightly downward. Palpus is minute, short and cylindrical.

The antenna is attached at the middle of the head, comparatively elongate and distinctly slender, except on the first segment which is short, robust and convexly extended below; the second segment is nearly equal in length and beadlike. The third segment is at least 1½ times as long as the first two combined, basally not quite as wide as the second segment, a little swollen at the base, then distinctly narrowed above and below on the apical third, gradually swelling distally until it is wider than at the base. Apically this segment bears a long, microsegment with an apical bristle; sometimes there is a very short, additional, basal microsegment. The first segment characteristically has at least 3 stout, blunt, spikelike bristles on its ventral surface of the second segment. First segment laterally and dorsally with long, bristly hair and setae, the second segment with short, dorsal setae.

Head, anterior aspect: The face below the antenna is rather narrow and divergent below, the vertex less expanded. Subepistomal area short, nearly horizontal, deeply concave and bare. The face is pubescent with dense, matted pile and bristles which begin at the antenna; the bristles are concentrated below and extended down along the lateral margin to the epistoma but in some species they may be confined to a single transverse row of very stout bristles. The front is long, vertical and plane, pubescent, almost without pile. Vertex but little excavated, the ocellarium large and broad, rather high, with steep sides and bearing across the middle 6 pairs of slender bristly hairs or a dense tuft of similar hair, with a pair of slender bristles and 1 or 2 additional pairs between the posterior ocelli. The anterior ocellus is exceptionally large; lateral margins of the vertex with a tuft of dense pile in many species, perhaps in all. Anterior eye facets exceptionally strongly enlarged.

Thorax: The thorax is pollinose; the pile of the mesonotum is scanty but rather long, suberect, and slightly bristly; there is a row of acrostical pile which is quite distinct, a row of long, slender, dorsocentral bristles, which opposite the humerus tends to expand into a cluster; posteriorly these are sometimes reduced to very short hairs, but may continue in their same length. Humerus with 2 or 3 distinct bristles and with the following complement of quite long and rather stout, lateral bristles: 2 to 3 humeral, 2 posthumeral bristles set far from the lateral margin and sometimes absent, 3 notopleural in an oblique row, reduced to 2 sometimes, 1 to 3 supraalar, 2 postalar, with at least 6 to 8 pairs of long, stout, scutellar bristles. Scutellum flattened towards the base, gently convex distally densely pubescent, without pile. Propleuron with exceptionally dense tufts of long, coarse pile ventrally and on the posterolateral pronotum; the dorsal pronotum has a band of less numerous fine hairs; bristles absent. Mesopleuron without pile or bristles. The sternopleuron has a few scattered hairs 2 or 3 in the middle dorsally and a tuft anteriorly. Pteropleuron and hypopleuron apilose, the latter with a patch of pubescence. Metapleuron with a wide band of long, slender bristles and bristly hairs closely adjacent. Lateral slopes of the metanotum micropubescent only, the posterior border of the lateral metasternum and the chitinized ventral metasternum with abundant, long pile. Postmetacoxal area membranous; tegula pubescent only. Prosternum dissociated.

Legs: The femora are stout but only moderately thickened or swollen; the hind pair is considerably longer than the middle pair. Pile of the femora long, coarse, and more or less appressed. The following complement of bristles present in the type of genus: 15 dorsolateral, part of which represent doubled elements and those on the outer half are more conspicuous and there are also 5 or 6 less conspicuous lateral bristles and a ventromedial fringe of 8 to 10 bristly hairs. There are also 2 slender, subapical bristles dorsomedially with other shorter ones at the apex. Hind tibia show 5 or 6 dorsomedial, a like number of dorsolateral bristles, 4 or 5 lateral, and 5 stout, conspicuous ventrolateral bristles, besides 4 equally conspicuous ventromedial bristles. Middle femur with 4 or 5 anterior bristles, most of them slender and short, with a like number of ventral bristles, of which 2 found near the middle are comparatively stout. This tibia shows conspicuous bristles, long, oblique, stout, pale and slightly attenuate. There are 6 anterodorsal, a like number of slender posterodorsal, and 7 long posterior bristles, and at least 5 posteroventral bristles. Anterior femur with a band of long, shaggy, bristly hair posteriorly; this tibia has 4 short, anterodorsal, a like number of slightly long, posterodorsal, 4 long posterior bristles and the same number of ventral bristles. The anterior tibia ends without spine; all the tarsi slender; all the anterior tarsal segments elongate, their bristles prominent. Tarsi end in long, slender, sharp, slightly curved claws, no pulvilli, and with a long, slender, empodium.

Wings: The wings are hyaline; marginal cell widely open, the first and second posterior cells open in their maximal width, the fourth slightly narrowed, the anal cell narrowly open or closed in the margin. The upper end vein of the discal cell is shorter than the oblique, lower vein; the anterior crossvein enters the discal cell beyond the middle; the middle end vein of the second basal cell is a third the length of the upper vein; the alula is quite as wide as the costal cell, the ambient vein complete.

Abdomen: The abdomen is broad basally, as wide as the mesonotum, comparatively short and strongly tapered with a tendency to be flattened on the basal tergites. Pile of the abdomen scanty, coarse, comparatively short but longer on the sides of the first three tergites and in the females directed backward on the terminal segments. Males with eight tergites, the eighth from a third to half as long as the seventh and the seventh slightly shorter than the sixth, all tergites progressively shortened beyond the first. Females with eight tergites, the eighth is two-thirds as long as the seventh and sometimes much shorter. Male terminalia rotate a fourth to the left, short, with the epandrium cleft to base, but apposed on the basal half leaving the distal portion flared outwardly as flat, rounded lobes. Gonopod small, cylindrical but distinct. Hypandrium present and short, leaving the cavity open and exposed below. Female terminalia with 4 or 5 pairs of short, slender, apically rounded spines; accessory spines appear to be absent.

Distribution: Nearctic: *Ablautus californicus* Wilcox (1935); *coquilletti* Wilcox (1935); *flavipes* Coquillett (1904); *mcgregori* Bromley (1934); *mimus* Osten Sacken (1877); *nigronotum* Wilcox (1935); *rubens* Coquillett (1904); *rufotibialis* Back (1909); *squamipes* Cole (1924); *trifarius* Loew (1866); *vanduzeei* Wilcox (1935).

Genus *Coleomyia* Wilcox and Martin

FIGURES 130, 517, 1106, 1115, 1845, 1869, 1955

Coleomyia Wilcox and Martin, Bull. Brooklyn Ent. Soc., vol. 30, p. 205, 1935. Type of genus: *Metapogon setigerum* Cole, *in* Cole and Lovett, 1919, by original designation.

Small flies of bare aspect and extremely reduced pile, which is black or dull in color with some pollen. They are most readily distinguished by the short face, the short antenna and the rather scattered, exceptionally stout bristles of the face on which pile is almost lacking. Protibial apex without spine. Scutellum as in *Nannocyrtopogon* Wilcox and Martin, apilose, the margin with conspicuously stout bristles. Male wings sometimes bicolored. Length 8 to 12 mm.

Head, lateral aspect: The head is of medium length, face short near the antenna, becoming a little more prominent below due to the recession of the eye. The face is not quite plane and more distinctly rounded just above the epistoma. The subepistomal area small, concave and distinctly horizontal. Occiput moderately developed, except at the vertex. There is a gentle posteroventral recession of the eye beginning at the middle of the head. Occipital pile is fine, moderately long, but not abundant; bristles begin near the upper third, the lower ones weak, the upper elements quite stout. There are no distinct postvertical bristles, although the last 2 are slightly medial to the eye. Proboscis is short, and quite robust, but compressed to a blunt point on the outer fourth and not extended beyond the face. The palpus is small, of two segments, the first segment excavated, the second short and cylindrical, with an apical bristles. The antenna is attached at the middle of the head and rather short, not as long as the head. Both first and second segments beadlike, the first with 1, the second with 3 exceptionally stout, long, ventral bristles. Third segment very little if any wider than the second segment, barely narrowed at base, a little more strongly at the apex, with a conical spine-tipped microsegment.

Head, anterior aspect: The head is not as wide as the thorax; the face below antenna about one-fourth the head width, slightly wider below, densely micropubescent; pile is almost absent on the face, such pile as is present is bristly, and beginning shortly beneath the antenna are long, scattered, very stout, blunt, black bristles. Front divergent, convergent again at the vertex, with 3 shallow central grooves; surface pollinose near the eye margin, with a longitudinal row of 6 stout bristles and a submedial patch of 4 setae. Vertex only moderately excavated, with slanting lateral sides, very large ocellarium, also with slanting sides, bearing between the ocelli 3 pairs and behind the ocelli 2 pairs of long, conspicuous, blunt bristles. Anterior eye facets moderately enlarged.

Thorax: The thorax is pollinose, with very little pile which consists of a few, fine, scattered, anterior and also supraalar setae. There are only 1 or 2 minute acrostical bristles but there are long, stout, conspicuous dorsocentral bristles anteriorly as well as posteriorly consisting of 6 or 7 pairs. Lateral complement of stout, long bristles comprises 2 humeral, 1 posthumeral, 2 notopleural, 1 supraalar, 2 postalar, and 1 to 2 pairs of scutellar bristles. Pronotal collar with at most 1 or 2 slender bristles, usually only fine pile. Lateral pronotum with 1 or 2 stout bristles, a few fine hairs, and cervical sclerite with dense, fine pile. Prosternum dissociated. Metapleuron with 4 or 5 similar bristles in a vertical row; remainder of pleuron without pile, but largely pollinose, but with bare areas below. Lateral and ventral metasternum with pile; postmetacoxal area membranous.

Legs: The legs are stout; all the femora are very slightly swollen through the middle but not conspicuously, their pile appressed setate, dense on the upper half, almost bare below. All femora ventrally with a few quite long bristly hairs; tibial bristles prominent, femoral bristles quite short. Hind femur with 7 or 8 lateral bristles, 1 or 2 of which may be stout, the apex with 1 or 2 on each side. Middle femur with a few short bristles anteriorly, especially anteroventrally. Anterior femur with 5 concentrated on the outer half behind. Posterior tibia with 5 dorsomedial, some minute medial bristles, and 5 lateral bristles, the same number of ventral bristles. Midtibial anterodorsal and ventral bristles unusually long, 5 in the former row, 4 in the latter, and 5 or 6 bristles each in the anteroventral, posterodorsal, and posterior rows. Anterior tibia with 7 short posterior bristles, the same number of posterodorsal, 9 anterior dorsal and 4 long, ventral bristles. Apex without spine. Claws slender, sharp; pulvilli and empodium well developed.

Wings: The wings are slender, all posterior cells widely open, fourth very slightly narrowed, the rectangular anterior crossvein enters the discal cell near the middle. Middle end of the second basal cell long. End veins of discal cell of equal length. Anal cell open; alula of medium length; ambient vein complete.

Abdomen: The abdomen is comparatively robust at the base, strongly tapered in the females, less so in the males. The pile is appressed setate and quite scanty. Segments dully shining, bare, with posterior pollinose fasciae or pairs of spots. First tergite with 2 to 4 stout bristles laterally. Males with seven tergites, the last is half the length of the sixth. Females with eight tergites, the last is reduced to half. Male terminalia rotate one-half, small and inconspicuous. The epandrium is cleft but overlapping at the base, gonopod broad at the base with a distal lobe. Hypandrium very short. Genital cavity open. Females with 7 or 8 pairs of short, spoonlike spines on the acanthophorites.

Distribution: Nearctic: *Coleomyia alticola* James (1941); *hinei* Wilcox and Martin (1935); *rainieri* Wilcox and Martin (1935); *sculleni* Wilcox and Martin (1935); *setigerum* Cole (1919).

Genus *Habropogon* Loew

Figures 134, 513, 1109, 1118, 1752, 1756, 1777, 1828

Habropogon Loew, Linnaea Entomologica, vol. 2, p. 463, 1847. Type of genus: *Dasypogon exquisitus* Meigen, 1820. Designated by Coquillett, 1910, the first of two species.

Dactiliscus Rondani, Dipterologiae Italica prodromus, vol. 1, p. 158, 1856. Type of genus: *Asilus striatus* Fabricius, 1794, by original designation.

Dactyliscus Marschall, Nomenclator Zoologicus, p. 327, 1873. Lapsus.

Small to medium size flies for the most part with short or reduced pile and strongly pollinose. The vertex shows little or no excavation, the lower half of the face has a dense mystax of slender bristles or bristly hair. The palpus is large, the second segment especially large and swollen with dense, bristly pile. The medial surface flattened, smooth and bare. Length 9 to 14 mm.

Head, lateral aspect: The face is rather short, gently convex, either receding below or sometimes nearly straight on the upper portion. The eye is unusually long, strongly convex anteriorly, gently convex behind. The occiput is exceptionally prominent and very thick and continues in that extent to the vertex; the pile is moderately dense, stiff and coarse ventrally and is replaced by a wide band of numerous, deeply submarginal bristles dorsally. In some species these dorsal bristles are rather longer, more slender, strongly curled forward. The proboscis is moderately long, stout, concave below, and dorsoventrally compressed on the apical third; from a lateral aspect the base is swollen ventrally and it has a prominent, high medial ridge extending to the outer third. The apex bears a few short, fine hairs, the base some longer stiff pile below. Palpus with the basal segment short and membranous laterally, chitinized below, fused medially; the second segment characteristically is unusually large, swollen, and carries numerous, long, stiff hairs or bristly pile except that the dorsomedial surface is more or less flattened and apilose.

Head, anterior aspect: The face below antenna is about one-fourth the head width and divergent below; the front is slightly divergent above at the vertex. Subepistomal area moderately large but only slightly oblique, deeply concave with a high, thin, medial ridge. The face is pubescent on the lower half or two-thirds and bears dense, slender, bristly pile or weak bristles; in some species these elements are so dense as to form a rooflike enclosure over the epistomal area, much as in *Stichopogon* Loew. The antenna is attached at or above the upper third of the head, only moderately elongate, the first two segments short, of nearly equal length, or the first segment a little longer than the second. The third segment is somewhat widened in the middle, gently tapered towards the base and apex; it bears a single elongate and slender microsegment 5 or 6 times as long as wide, truncate apically, with a minute spine. The pile of the first and second segments consists of several stiff, short, bristly hairs ventrally with sometimes 2 elements accentuated on the first segment and one long stiff bristle ventrally on the second segment. Dorsal bristles at the apex of the second segment usually short but in some species long and stout. The front is short and pollinose with a single ocular row of slender or stout bristles, 6 or 7 in number. Vertex but little excavated, the ocellarium large but low with vertical sides and bearing either 2 or 3 short bristles between the ocelli or 2 or 3 pairs of long, slender bristles with several additional bristles behind the posterior ocelli. The front varies in width; it may be rather strongly divergent, the vertex not at all excavated or the front may be very slightly wider in the middle than at the antenna, convergent again at the vertex. Central eye facets moderately enlarged.

Thorax: The thorax is strongly pollinose, the pile of the mesonotum is abundant, more or less erect, stiff and bristly, rather fine laterally. There are no humeral, acrostical, or dorsocentral elements differentiated anteriorly, the latter may, on the posterior half of the mesonotum, develop into a longitudinal row of 4 or 5 long, medium stout bristles, or the whole posterior half of the mesonotum may be covered with quite long, slender bristles. The following complement of lateral bristles may be present: 2 to 5 notopleural, 5 to 11 supraalar, 3 or 4 postalar, and 7 or 8 pairs on the scutellum. Scutellum flat, pollinose, without pile. Propleuron with abundant, long, stiff pile ventrally on the anterior collar and especially on the dorsal postpropleuron; bristles usually absent, but are occasionally present. Upper mesopleuron and anterior sternopleuron with pile; there may be weak bristles narrowly along the dorsal margin of the mesopleuron. The posterior sternopleuron, pteropleuron, and hypopleuron apilose. Metapleuron with a vertical band of numerous, stout bristles and more slender hair intermixed. Metanotal slopes micropubescent only; tegula with bristles; anterior basalare characteristically with a conspicuous tuft of long, abundant, bristly pile. Lateral metasternum posteriorly with pile, ventral metasternum wide, chitinized, densely long pilose, isolated behind; the postmetacoxal area membranous. Prosternum dissociated.

Legs: The legs are stout without being swollen; densely covered with long, flat appressed, coarse pile on the dorsal and lateral surfaces of the femora, becoming more erect on the ventral half; the tibiae are covered with similar, appressed or subappressed, abundant pile, the bristles rather prominent. The following complement of bristles may be present: the hind femur with 8 lateral and with a row or cluster dorsolaterally near the apex of 3 to 7 bristles; the immediate apex may have 3 dorsolaterally and 3 medially in addition to the others named. Ventral surface with 10 to 12 long, slender hairs, absent in some species. Hind tibia with 5 or 6 slender, dorsal bristles. Lateral elements consist of 2 well developed bristles on the outer half, 1 or 2 very slender, long hairs basolaterally. There may be present a second dorsolateral row consisting of 5 very short or even long and short bristles. Middle femur with numerous bristles on the apical fourth, 5 or 6 at the immediate apex, chiefly dorsal and anterior, a sublateral row of 1 anterior and 1 dorsal, 4 posterior, and behind these 1 anterior and 2 anterodorsal; these numbers are in some species reduced. Middle tibia with 3 to 5 anterodorsal, 5 to 6 posterodorsal, and 5 or 6 posteroventral bristles. Anterior femur with apical bristles similar to the middle femora. Anterior tibia with a similar complement of bristles, 2 rows dorsally, a single stout posteroventral row of stout bristles. Apex of tibia without spine. The anterior tarsus quite short, especially the basitarsus, which is but little longer than the second segment. Tarsi end in stout, rather blunt claws with large, wide pulvilli and long bristlelike empodium, not or scarcely swollen at the base; the empodium may be reduced until it reaches barely beyond the basal swelling of the claw.

Wings: The marginal cell widely open; anterior branch of third vein ends at the wing apex, the posterior branch a short distance behind. The first posterior cell is widely open, fourth cell slightly narrowed to two-thirds its maximum width, or occasionally sharply narrowed, but open in all species examined. Anal cell unusually widely open; middle end vein of the second basal cell short; alula moderately wide; ambient vein complete.

Abdomen: At the base the abdomen is nearly as wide as the mesonotum and rather strongly tapered. Males with eight tergites, the eighth from a third to a half as long as the seventh, female with eight tergites, the last tergite quite long. Pile of the abdomen fine, short and erect or appressed, but becoming a little longer laterally especially on the first three tergites. The male terminalia is rather large, rotate about a fourth. The epandrium is cleft to the base but the sides are closely adjacent except apically where they are flared apart. Gonopod prominent, basally swollen with a long, cylindrical, obtuse, distal process. Proctiger long, flat, prominent and shovellike. Hypandrium distinct but quite short. The whole male structure presents a clublike appearance. Female terminalia with 5 pairs of long, slender, apically rounded, thin or slightly spoon-shaped, dorsoventrally compressed spines. They appear to have a few weak bristles ventrolaterally; the last sternite is unusually long and troughlike, apically notched or apically split for a short distance and extending considerably beyond the eighth tergite.

Distribution: Palaearctic: *Habropogon aegyptius* Efflatoun (1937); *albibarbis* Macquart (1838); *appendiculatus* Schiner (1867); *bipartitus* Villeneuve (1931); *carthaginiensis* Becker (1915); *doriae* Rondani (1873); *elegantulus* Efflatoun (1937); *exquisitus* Wiedemann in Meigen (1820) [=*rutilus* Meigen (1838)]; *heteroneurus* Timon-David (1951); *latifrons* Loew (1870); *longiventris* Loew (1847); *pertusus* Becker (1908); *rubriventris* Macquart (1849); *scheno* Walker (1849); *spissipes* Hermann (1909); *striatus* Fabricius (1794); *verticalis* Becker in Becker and Stein (1913).

Ethiopian: *Habropogon antigenes* Walker (1849); *rhodesii* Ricardo (1925); *senilis* Wulp (1899).

Oriental: *Habropogon jucundus* Wulp (1872) [=*vertebratus* Bigot (1878].

Verrall (1909) in his appendix list of Palaearctic species of Asilids includes a species, *Habropogon gujoti* Hermann from Sinai. I have not seen a reference or date for this species, which may not be published.

Graptostylus, new genus

Type of genus: *Graptostylus dolosus*, new species.

Medium size flies with slender, elongate abdomen and large, long, broad wings as long as the abdomen. This rather curious fly suggests the Stichopogonini in its general appearance. Certainly the extraordinarily dense, silvery to greyish white pollen everywhere covering the fly, except on the legs and except on the black mesonotal stripes, is strongly suggestive of that tribe. The venation and the terminalia are also similar to those flies. However, the vertex is not divergent above, the lateral metasternum is densely long pilose and not bare. While the head, thorax and abdomen are densely pollinose, the legs are shining black, slender, rather long and quite without pollen. Bristles of mesonotum, tibiae and tarsi extraordinarily long. *Graptostylus* traces in the Stenopogonini key to the genus *Habropogon* Loew, to which it is quite dissimilar. Length 12 mm.

Head, lateral aspect: Face quite short on the upper half, with a low gibbosity below, rendered more conspicuous because of the retreating eye. Antenna attached a little above the middle of the head and a little longer than the head. The occiput is prominent only in the middle and below, the posterior eye margin almost as convex as the anterior eye margin. Occiput with fine, short pile above, 4 or 5 long, slender, laterally curved bristles placed deeply behind the vertex and with dense, long fine pile on the ventral half of the occiput. Proboscis stout, obliquely truncate at the apex, relatively short but distinctly extended beyond the face and directed obliquely forward. Palpus with the first segment short, not excavated, the second segment long, swollen through the middle, with narrowed apex and a number of fine hairs, except on the attenuate portion. Ventral surface of the proboscis with numerous, long, fine hairs on the basal half. Antenna relatively slender, the first segment 1½ times as long as the second, the second about as long as high, the third segment a little widened through the middle and slightly narrowed near the apex, with two stout, downturned microsegments, the first of which is only as long as wide and the second is two or three times as long as the first. First segment with numerous, long, fine, white hairs and other bristly hairs ventrally, laterally and shorter hairs dorsally. Second segment with short, fine, white hairs dorsally and ventrally.

Head, anterior aspect: Width of face below the antenna slightly more than a third the head width and slightly widening below. It is densely covered with pale micropubescence, the upper third without pile; lower gibbous portion with a cluster of 12 to 14 moderately long, basally stout, yellow bristles, together with numerous, more slender bristles below on each side and with a few fine, shorter hairs above the bristles. Front slightly widened across the middle, narrowed above to approximately the same width as that across the antenna. Vertex shallowly excavated, the ocellarium large and rounded and bearing 2 stout, long bristles in the center and several fine, long hairs behind. Anterior ocellus enlarged. On the sides of the face on the bottom of the eye there is a deep, conspicuous, recess or pocket quite suggestive of *Plesiomma* Macquart.

Thorax: The thorax is pollinose, with down the middle a divided row of fine, erect hairs and with 4 long, slender, dorsocentral bristles in front of the suture and 4 behind. Humerus with long, fine pile. Marginal bristles extraordinarily long, including those of the scutellum. The supraalar bristle and postalar callosity bristle are longer than the antenna. Notopleuron with 2 bristles, supraalar with 1, postalar callosity with 2 and scutellum with 2 marginal pairs of bristles. Disc of mesonotum and scutellum with rather abundant, long, fine, erect hairs. Metapleuron with a wide band of long, slender bristles and bristly hairs. Mesopleural pile scanty but long, confined to the posterior border and a few short, dorsal hairs. Both halteres seem broken off, the stalk remaining. Prosternum dissociated; metasternum membranous behind.

Legs: The legs are long and slender, shining, without pollen, with dense, coarse, subappressed pile and with stout and extraordinarily long bristles, especially on the middle tibia and on all the tarsi. Hind femur with a row of long, erect, basal hairs ventrally on the basal half and moderately dense, short, erect pile on most of the ventromedial aspect and ventrolaterally the pile is downturned. Hind tibia with moderately long but stout, flat appressed bristles, 4 dorsolateral, 3 dorsomedial, both the basal elements stout and long, and 3 ventrolateral on the outer half. Middle and anterior femora with conspicuous, ventral fringe of very long, fine, erect pile. Middle tibia with extraordinarily long, stout bristles, 2 anterodorsally at basal and outer third, the second bristle extends to the middle of the long, first tarsal segment, and in addition there are 2 shorter bristles near the base of the tibia. There are 3 short posterodorsal, 3 slightly longer posterior bristles. and 4 of the very long, ventral bristles. All these bristles are appressed. Anterior tibia with rather similar bristles, but without apical spine; its posteroventral bristles are longest but a little shorter than those of the middle tibia. Tarsal bristles extraordinarily long, also appressed, and for the most part extending beyond the apex nearly to the end of the next segment. Claws long, sharp and slender, the pulvillus large, long and wide; the long empodium is a little flattened.

Wings: The wings are large, long and villose. All the posterior cells widely open, the fourth a little narrowed, the anal cell open. Alula large, ambient vein complete. Marginal cell widely open, third vein forks a little beyond the end of the discal cell. Anterior crossvein enters the discal cell near the outer third.

Abdomen: The abdomen is long, slender, subcylindrical with parallel sides, everywhere densely pale pollinose with long pile on the sides of the first four segments, shorter beyond. The pile is especially long, fine, and dense on the sides of the first two segments and laterally the first segment has 6 long, stout bristles. Lateral metasternum pilose. Terminalia small with the wide, short epandrium convex and notched at the apex.

Distribution: Neotropical: *Graptostylus dolosus*, new species. From Chile.

Graptostylus dolosus, new species

Densely greyish white, pollinose species, the legs totally shining brownish black, most nearly black on the dorsal surface of the hind femur. Bristles of the head, thorax and abdomen distinctly yellow and even slightly reddish; those of tibiae and most of the tarsal bristles pale yellow; some of the tarsal bristles brownish black. Length 12 mm.

Male. Head: The head is black, for the most part completely obscured by pollen, which is thinnest on either side of and behind the ocelli. Proboscis and palpus dark reddish brown. Pile of the head nearly white, only the mystax yellow. Antenna black with whitish pollen, which changes to brown on the medial surface of the third segment.

Thorax: The thorax is densely greyish white pollinose, with some areas such as the mesopleuron, posterior propleuron, and upper sternopleuron faintly brownish yellow pollinose. Mesonotum with a pair of obscure, rather widely separated, brownish black, narrow, submedial stripes. On each side are 2 rather small, obscure spots of dark brown pollen, one in front of and one behind the suture. Scutellum grey pollinose. All mesonotal bristles and scutellar bristles distinctly yellow. Metapleural bristles much paler.

Legs: The legs are black or nearly so with the anterior tarsus extremely dark reddish brown and some of its bristles the same color and others whitish. Pile of the legs white.

Wings: The wings are faintly brownish hyaline, the veins light brown.

Abdomen: The abdomen is densely greyish to almost silvery white pollinose. Bristles of first segment pale yellow; all abdominal pile white. Terminalia brownish black with very thin pollen above not obscuring the ground color, none below, its pile and bristles white.

Type: Male, Valparaiso, Chile, January 25, A. Faz. In the United States National Museum.

Genus *Amphisbetetus* Hermann

FIGURES 75A, 508, 990, 999, 1967

Amphisbetetus Hermann, Zeitschr. syst. Hymen. und Dipt., vol. 6, p. 131, 1906. Type of genus: *Habropogon favillaceus* Loew, 1856, by original designation.

Quite small, short, sparse pilose flies of stout, robust and pollinose appearance. The face is short, receding below, bristly or pilose throughout and the proboscis short. Related to *Habropogon* Loew and separated by the slender pulvilli of reduced length, the more slender antenna and the short, robust form. From *Pycnopogon* Loew and *Heteropogon* Loew it is separated by the parallel sides of the front and vertex. In general appearance it is not unlike some of the medium size, short pilose species of *Heteropogon* with short abdomen. Length 7 to 9 mm.

Head, lateral aspect: The face is very short, distinctly convex, and receding below. The eye is rather long, strongly convex anteriorly, plane on the portion lying above the middle, except near the vertex, where it is strongly rounded. The lower two-fifths of the posterior margin is anteroventrally recessive but rounded. The occiput is only moderately thick, a little more extensive below. The occipital pile is rather scanty, a little more abundant below, longer and fine; it is absent from the middle and upper portion and replaced by double row of slender, bristly hairs or very weak bristles; behind the upper eye corners this row is trebled. The proboscis is short, relatively stout, obtusely rounded at the apex, and subcylindrical but it is apparently higher than wide, because of a long, low, medial ridge. The apex bears fine, bristly pile, but the base below has only 3 or 4 long, fine hairs. Proboscis directed chiefly forward and very little longer than the face. Palpus minute, cylindrical and short, composed of two segments; the first segment is excavated. Antenna attached quite at the middle of the head, rather elongate, comparatively slender; the first two segments are of nearly equal length, with both short. The first is rather convex and protuberant ventrally, straight dorsally. The third segment is nearly or quite as wide as the second and of uniform width except near the immediate apex, where it is slightly narrowed; it is a little more than 1½ times as long as the first two segments and bears a moderately long, stout microsegment which is directed downward and carries an apical spine.

Head, anterior aspect: The face below antenna is about one-fourth of the head width and divergent below. The vertex is very nearly the same width as the upper face. Subepistomal area is small and short, nearly horizontal. The face is quite thinly micropubescent with abundant, slender, bristly pile; the epistomal margins of the lower face with 2 pairs of very slender bristles. The front is flat, micropubescent with 5 or 6 fine hairs laterally; vertex moderately excavated with slanting sides, the ocellarium large, only moderately high but with steep sides and considerably lower than in *Pycnopogon* Loew. It bears in the middle 3 pairs of slender bristles or bristly hairs and 3 pairs of shorter hairs behind the ocelli. Anterior eye facets strongly enlarged.

Thorax: The pleuron is partly bare, with micropubescence or pollen on the lower propleuron, upper mesopleuron, posterior sternopleuron, the hypopleuron, and the metapleuron. Mesonotum with a large, bare area but characteristically with vittae or fasciae of micropubescence. The pile of the mesonotum is abundant but long, fine and bristly, the elements curled backward; there is a double row of acrostical elements present, but dorsocentral bristles or hairs are not differentiated; the pile in front of the scutellum may be somewhat longer across this entire area. Humerus with 8 or 10 long, stiff hairs. The lateral margins of the mesonotum may have the following complement of long, stout, pale bristles: 2 notopleural, 1 supraalar, 1 postalar, and 6 pairs on the scutellum. Scutellum convex, with an impressed rim, bare, except along the base, which is micropubescent and the whole structure apilose. Propleuron with rather scanty, fine pile; bristles absent on the collar, but with 2 or more distinct, long, slender bristles on the posterolateral pronotum. The mesopleuron is strongly protuberant, villose, rather rounded and domelike, the upper half pubescent with abundant, long, fine pile but no bristles. Anterior and posterior upper sternopleuron both pubescent and pilose; pteropleuron and hypopleuron apilose; metapleuron with a narrow, vertical band of 15 or more long, slender bristles or bristly hairs which are bent and curved distally; the lateral metanotum is micropubescent only; tegula with setae; basalare micropubescent only; lateral and ventral metasternum with pile; postmetacoxal area membranous.

Legs: The femora are stout without being swollen; the dorsal pile is fine, setate, and subappressed. The following complement of bristles may be present on the hind femur, 6 lateral, 1 subapical dorsolateral, 1 dorsal and 1 dorsomedial, besides a ventrolateral row of bristly hairs and a ventral row partly doubled and trebled basally; these ventral elements consist of longer, slender, bristly hairs or weak bristles. This tibia has 2 dorsal bristles on the outer half, with 5 lateral and 3 slightly longer, ventrolateral bristles at the middle and beyond, and 1 similar bristle hair basally; the apex has short, stout bristles, 1 dorsomedial, 4 medial, 3 ventral, 1 ventrolateral, and 1 dorsolateral. Middle femur with 4 anterior bristles and 4 bristles posteriorly near the apex and with a row of ventral and posteroventral hairs. This tibia with 4 or 5 anterodorsal bristles, 3 or 4 posterodorsal, and 7 comparatively long posteroventral bristles, besides 3 still longer ventral bristles. Anterior femur with a single, long, stout, posterodorsal bristle at the outer fourth; its tibia has 6 or 7 short anterodorsal, a like number of posterodorsal, 6 posterior, and 5 or 6 posteroventral bristles, besides 2 long, ventral bristles near the middle. Apex of anterior tibia without spine. Claws slender, sharp, curved from the base, with narrow pulvilli extending to the outer third of the claws; the empodium is short and slender, the hind claws sometimes very strongly curved and arched with exceptionally slender, narrow pulvilli.

Wings: The marginal and all of the posterior cells are widely open, the anal cell narrowly closed; the anterior crossvein enters the discal cell in the middle, the second basal cell ends in 3 veins, the middle vein short. There is a tendency for a minute nodular spur to be present near the base of the second submarginal cell;

the alula is large, the ambient vein distinctly ends at the anal cell.

Abdomen: The abdomen is robust and short, but rather strongly tapered from the base, which is fully as wide as the mesonotum; the middle of the tergites are slightly flattened. In the female are eight tergites; the eighth is about two-thirds as long as the seventh, the seventh not more than half as long as the sixth, and the sixth about three-fourths as long as the fifth. Sides of the first tergite with 7 or 8 distinct bristles in a double row, remaining tergites with only bristly hairs laterally. The pile of the abdomen is quite scanty, flat appressed and setate. The tergites may have interrupted, lateral fascia of minute scales. Female terminalia with at least 4 pairs of long, apically rounded, more or less spatulate spoon-shaped spines. No males were seen.

Distribution: Palaearctic: *Amphisbetetus affinis* Hermann (1906); *dorsatus* Becker in Becker and Stein (1913); *favillaceus* Loew (1856); *gederati* Efflatoun (1937).

Genus *Iranopogon* Timon-David

Figures 2512, 2513, 2519

Iranopogon Timon-David, Bull. Soc. Ent. France, vol. 60, p. 103. 1955. Type of genus: *Iranopogon brandti* Timon-David 1955, by original designation.

I give below Timon-David's description in translation:

> Related to *Amphisbetetus* Hermann. *Iranopogon* is situated among the Dasypogoninae Eremocnemini of Hermann. Length 9.5 mm.
>
> Size average; pile but little developed. Head very large, much larger than the thorax, concave in the posterior part. Width of the front at the level of the ocellar tubercle a little inferior to half of the width of the eye. Front at the sides parallel. Face at the sides strongly divergent toward the bottom. Proboscis very short. Antennae inserted at the level of the middle of the eye. Style biarticulate, with a short, sensory spine at the tip. No spur on anterior tibia. Wing: marginal cell open; anal cell closed and petiolate. All posterior cells open. Ovipositor (oviscapte) without spines.
>
> The nearest relative of *Iranopogon* seems to be *Amphisbetetus* Hermann, 1906, but there are these important differences; in *Amphisbetetus* the internal border of the eyes in the region where they delimit the face are subparallel and not strongly divergent (see fig. 262, p. 420, given by O. Engel in Lindner); the eyes are less developed in the transverse sense, the proboscis is much longer, the anal cell is closed in the margin and not petiolate; the ovipositor is armed with spines. With *Pycnopogon* Loew, the frontal area is considerably enlarged toward the vertex; with *Habropogon* Loew, the contraction of the first and second metatarsi is characteristic. With *Stichopogon* Loew, the frontal area is much enlarged at the upper part and the abdomen is compressed dorsoventrally. With *Crobilocerus* Loew, the style is ciliate, the proboscis strong and long. With *Anisopogon* Loew and with *Heteropogon* Loew, the insertion of the antennae is made above the middle of the eye and the ovipositor is always armed with spines.

Distribution: Palaearctic: *Iranopogon brandti* Timon-David (1955).

In the females of some genera, like *Amphisbetetus* Hermann, the ovipositoral spines are not only minute but often deeply recessed and inconspicuous. If *Iranopogon* truly lacks spines, this is a character of great interest, and one that possibly additional specimens will be needed to verify.

Genus *Astylopogon* de Meijere

Figures 2520, 2532

Astylopogon de Meijere, Bijdragen tot de Dierkunde, vol. 19, p. 51, 1913. Type of genus: *Astylopogon catharinae* de Meijere, 1913, by monotypy.

I give below a translation of de Meijere's description:

> Related to *Dioctria* in form. Length 5 mm., length of wing 4 mm.
>
> Head short. Eyes large, the anterior facets considerably larger. Ocellar bristles very short and weak. Third antennal segment of elongate form, longer than both basal segments together, and before the apex with a thorn or spine situated dorsally; a style is not present. Lower face narrow, of equal breadth, and without a gibbosity. The epistomal mystax or beard is composed of only small, or weak bristles. Proboscis short, held horizontally. Thorax as long as broad, without bristles, strongly arched. Metapleuron with long bristles. Scutellum without bristles.
>
> Abdomen of slender form. Legs not especially long. Anterior tibia at the apex without bristle, only with a little hair. Femora and tibiae with many bristly hairs. Hind femur and hind tibia at least in the type of genus with a brush of hair. All metatarsi clearly somewhat longer than the following segment. Pulvilli well developed. Wings, moderately broad; the first longitudinal vein ends on the anterior wing margin relatively close to the auxiliary vein. The discal cell sends only two veins to the wing margin, so that there are only four posterior cells, all of which are open. Also the third posterior cell is not narrowed on the wing margin, and the base is not stalked. Second discoidal cell and fourth posterior cell provided with a short crossvein at base. Anal cell closed. Alula rudimentary.

Distribution: Australian: *Astylopogon catharinae* de Meijere (1913). (From Waigeu).

Genus *Oligopogon* Loew

Figures 69, 461, 1107, 1116, 1881

Oligopogon Loew, Linnaea Entomologica, vol. 2, p. 497, 1847. Type of genus: *Dasypogon hybotinus* Loew, 1847, by monotypy.

Small, delicate flies with slender, more or less flattened abdomen, densely pale pollinose and with short scanty pile. They are readily recognized by the presence of long plumes on the outer half of the third antennal segment. This segment is strongly attenuate and carries a plumose style as long as the remainder of the segment. The eyes are very wide and flattened with greatly enlarged central facets and from a dorsal view strongly excavated posteromedially. From the Damalini, which it otherwise resembles, it is separated by the presence of 4 pairs of long, rather sharp, well developed spines on the female acanthophorites. Length 6 to 7 mm.

Head, lateral aspect: The face is exceptionally short and very little produced; it is chiefly visible because of the posterior recession of the eye and is gently rounded, convex and retreating below. Eye wide, strongly flattened in front, it is of medium length, a little more prominent on the lower half; it is nearly plane throughout the middle of the posterior profile but convex and recessive above and below. The occiput is almost obliterated in profile but appears as a thin border along the posterior margin of the eye at the vertex. The pile of the occiput is reduced, on the ventral portion, to a very few fine hairs which though very slender are bristly in character and proclinate; dorsally there is a single row of similar, slightly curved hairs which at the vertex are perhaps a little more stout. The proboscis is small, slender, with nearly parallel sides; from the dorsal view the apical third is a little tapered, from the lateral aspect it is plane ventrally and rounded dorsally to a blunt apex. There is a thin, low, medial ridge. At the apex are slender hairs and 2 or 3 pairs of long, slender bristly hairs arise basally at the middle. Proboscis directed obliquely downward; its length is equal the length of the eye. Palpus small, clearly of two segments; the first segment more robust, excavated, and with 2 or 3 bristly hairs ventrally and basally and 4 others ventrally and apically; the second segment set at a slight angle, cylindrical, slightly curved downward with truncate porate apex and 2 long, slender bristles ventrally at the apex.

The antenna is attached at the middle of the head; the first two segments are quite short, of nearly equal length, second segment considerably wider distally, third segment elongate and slender and beadlike or bulblike at its base, where it is considerably narrower than the second segment or even the first segment. The third segment is strongly attenuate distally and carries a rather stout style as long as itself; this style is slightly bent, curved, and bears 5 or 6 long, slender, dorsal plumes, a like number of lateral, and at least 7 or 8 ventral plumes, besides several at the apex. First segment with 2 long, fine hairs ventrally, 2 shorter ones dorsally, the second segment with a long, slender bristle ventrally and short hairs apically above.

Head, anterior aspect: The head is nearly two times as wide as high. Face below antenna less than a third the head width, with parallel sides, the vertex slightly widened. Subepistomal area large, oblique, plane, bare, and a little longer than the face. Face densely and minutely micropubescent, with a cluster of long, fine, bristly hairs in the middle of the lower half of the face and with 3 pairs of similar bristly hairs on the upper lateral margin of the epistoma. Vertex very little excavated with gently sloping sides, slightly widened. The large, wide, rather high ocellarium bears large ocelli; its sides are nearly vertical and carry a pair of quite long, divergent, moderately stout, anteriorly directed bristles which are as long as the whole third antennal segment; they are attached between the posterior ocelli and along the anterior and posterior margin of each posterior ocelli is a single, short, bristly hair. Dorsally the vertex is excavated and flared posterolaterally. Anterior eye facets greatly enlarged.

Thorax: The thorax is almost everywhere densely, minutely pubescent; a few bare areas tend to appear, due apparently to rubbing. Mesonotum almost equally abrupt and convex posteriorly as anteriorly. Pile of mesonotum very scanty, consisting of long, nearly erect, bristly hair. There is a band of such acrostical pile anteriorly and also in front of the suture 4 or 5 moderately long, slender, dorsocentral bristly hairs which become a little longer posteriorly behind the suture. Humerus micropubescent only. The following complement of long, pale, moderately stout, lateral bristles is present: 2 notopleural, 1 postsupraalar, 1 postalar, and 1 pair of scutellar bristles. Scutellum thick, convex and pubescent; the disc has on each side 4 or 5 slender, long, fine hairs. Propleuron with a tuft of stiff, bristly pile ventrally; anterior collar with 5 or 6 pairs of quite long, bristly hairs; posterolateral pronotum with 7 or 8 long, slender, bristly hairs; upper anterior mesopleuron with a band of 7 or 8 long, fine hairs especially long anteriorly; pile absent posteriorly and bristles absent. Sternopleuron, pteropleuron, and hypopleuron apilose, the latter has an oval patch of high pubescence. Mesopleuron with a vertical row of 5 to 7 long, slender bristles, lateral slopes of the metanotum micropubescent only. Lateral metasternum with numerous, fine, long hairs throughout its length; ventral metasternum with somewhat fewer, shorter hairs; postmetacoxal area membranous and pubescent; tegula pubescent only. Prosternum not dissociated.

Legs: The femora, tibiae, and tarsi are slender; the hind femur is very slightly thickened beginning near the basal third but not swollen. Dorsal pile of the femora abundant, fine, rather short and subappressed. Ventrally the hind femur has some short, more nearly erect, similar, but scanty, bristly pile in addition to scattered, long, fine, bristly hairs. The following complement of bristles is present: a pair of stout, conspicuous, subapical bristles, 1 dorsomedial, 1 dorsolateral, 2 prominent ventrolateral bristles, one of them at the outer third, 4 prominent ventrolateral bristles, 1 at the outer third and 3 situated before the middle, and a row of 5 longer, slender bristlelike hairs ventromedially. The trochanters have 1 stout and 1 slender ventral bristle; hind tibia with stout, moderately long bristles, 2 dorsomedial at the basal and apical third, with at the same point basally a ventromedial and dorsolateral, and at the same point apically a still more stout lateral bristle, and at the apical fifth a ventrolateral bristle. Apex with 1 dorsomedial, 2 medial, 1 ventromedial, 1 dorsolateral, 1 lateral, 1 ventrolateral, and 2 long and 2 short ventral bristles. Middle femur with a pair of stout, subapical, dorsomedial, and dorsolateral bristles comparable to those of the hind femur. Ventral surface with fine, long, bristly hairs. Middle tibia with strong and moderately long bristles; 3 anterodorsal, 3 posterodorsal, 2 or 3 posteroventral bristles on the distal half, and 2 long, strong, ventral bristles at the basal and apical third. Anterior femur with 1 stout, subapical, posterodorsal bristle, its tibia with 3 fine, anterodorsal bristly hairs, 2 or 3 posterodorsal bristles, 3 posteroventral bristles, of which 2 at basal and apical third are rather long and stout. Apex without spine. Basitarsus nearly as long as the next three segments; tarsi end in slender, sharp claws, well developed pulvilli, and a short empodium, half as long as the claw and greatly swollen on its basal half.

Wings: The wings are hyaline, the marginal cell widely open; the anterior branch of the third vein is strongly arched backward to end at the apex of the wing which is also anteriorly arched backward. All of the posterior cells widely open their maximum width; anterior crossvein enters the middle of the discal cell; the upper end vein of the discal cell is a little shorter than the lower vein; the middle end vein of the second basal cell is long, the anal cell is closed with a long stalk, the alula is quite narrow, not as wide as the upper costal cell, the ambient vein complete.

Abdomen: The abdomen is comparatively slender, a little shorter than the total wing length and with nearly parallel sides that tend to be thinned and a little curled. Middles of the tergites somewhat flattened. Pile of the abdomen short, exceptionally fine and suberect, but the sides of the first and second tergites with some long, fine pile. The first tergite has a vertical, posterior band of 4 or 5 long, slender, bristly hairs. Males with seven tergites and short liplike trace of the eighth which may be concealed. In the female are eight tergites, the eighth not pollinose, nearly or quite as long as the seventh. Male epandrium completely divided and separated; proctiger quite small and short; the gonopod is well developed, becoming attenuate and sharply pointed or hooked apically. Hypandrium very short, almost concealed. Female terminalia with 4 pairs of unusually long and slender, apically rounded spines. The ventral plate is thin, triangular, apically notched and extending as a V-shaped scoop a little farther than the eighth tergite. Accessory spines or bristles absent.

Distribution: Ethiopian: *Oligopogon ater* Bigot (1878); *hybotinus* Loew (1847); *nigripennis* Engel and Cuthbertson (1937); *nitidus* Efflatoun (1937); *penicillatus* Loew (1857); *pollinosus* Engel (1932).

Country unknown: *?carvilius* Walker (1849).

Genus *Rhabdogaster* Loew

FIGURES 68, 505, 1108, 1117, 1971

Rhabdogaster Loew, Öfvers. Svenska. Vet.-Akad Förhandl., vol. 14, p. 346, 351, 1858. Type of genus: *Rhabdogaster nudus* Loew, 1858, by monotypy.

Very small, delicate, pale, pollinose flies with elongate, subcylindrical abdomen, and readily distinguished by the rather long, chitinized, postmetacoxal plate. Length 7 to 8 mm.

Head, lateral aspect: The face is plane with the eye except for a minute, ventral portion exposed at the anterior margin of the epistoma, visible only because of the posterior recession of the eye. The eye is rather longer than average, quite convex anteriorly and posteriorly as well, equally prominent above and below. The occiput is well developed and tumid, especially medially; it slopes rather abruptly down to the eye margin but on the lower portion there is along the eye margin a narrow, vertical rim which stands perpendicular to the eye margin. Pile of the occiput fine and quite scanty, moderately long ventrally and consisting of only a few hairs, replaced on the upper half by 6 pairs of slender, weak bristles. The proboscis is rather long, distinctly compressed laterally but tapered near the immediate apex to a bluntly rounded point which bears 3 or 4 short, stiff hairs apically and as many others ventrally on the apical third. The base has 3 or 4 fine, long hairs ventrally. There is a low dorsomedial ridge and the base is very slightly swollen ventrally and laterally. The proboscis is directed obliquely forward and downward. Palpus distinctly of two segments; the first segment is short and excavated with 3 or 4 long hairs ventrally. The second segment is cylindrical, slightly tapered at base and apex, and bears on all sides only a few bristly hairs which do not quite extend to the apex. There is a minute, lateral, subapical pore.

The antenna is attached at the upper third of the head, moderately elongate, distinctly slender; the first segment is quite short, a little shorter than the second. The third segment is slender and considerably more narrow than the second segment; it is one and a half times as long as the combined length of the first two segments. This segment bears two microsegments, the first is short but distinct, the second is two-thirds as long as the third segment, attenuate apically with fine, apical bristle and held obliquely downward. The first antennal segment has several fine hairs ventrally and shorter ones dorsally. Second segment with 1 to 2 moderately long, stiff setae dorsally and 1 or 2 still longer, stout setae ventrally.

Head, anterior aspect: The face below antenna is a fifth the head width and divergent below to nearly a third the width. Subepistomal area prominent, deeply concave, oblique and bare. The lateral creases along the cheeks are deep and prominent. The face is pubescent, with a narrow ventral row of weak, slender bristles above the epistomal margin, 5 on each side. The front is pubescent, very slightly widened toward the vertex, without pile or bristles, the vertex with scarcely any excavation. The ocellarium is prominent, with vertical sides and rather high; it rises above the eye and bears a few, minute hairs between the ocelli. Ocelli large and protuberant and there are a few fine bristly hairs behind the ocelli. Central eye facets greatly enlarged.

Thorax: The thorax is densely short, appressed pubescent. In lateral aspect the mesonotum is strongly arched and convex both anteriorly and posteriorly. The pile of the mesonotum is scanty, rather long, fine, and bristly, with a well developed single row of acrostical elements separated by a rather wide apilose band; the dorsocentral elements are differentiated only opposite the suture, where they are weak and posteriorly consist of 2 or 3 pairs of long, slender, bristly hairs. Humerus pubescent only. The following complement of bristles present laterally: 2 strong, rather long notopleural, 1 long stout postsupraalar, and beside it anteriorly and postmedially several short, slender, bristly hairs. Postalar with only fine, rather short, bristly hairs. Scutellum with 2 pairs of slender, bristly hairs; the scutellum is rather thick and convex; the surface pubescent and apilose. Propleuron with a few, fine, stiff hairs ventrally and a row of similar bristly hairs on the anterior collar dorsally. Mesopleuron pubescent only, upper posterior sternopleuron with 5 or 6 short, stiff hairs, pteropleuron and hypopleuron apilose; the hypopleuron has a small patch of long, appressed micropubescence. Metapleuron with a vertical row of 4 or 5 distinct, moderately long bristles, the lateral metanotum without pile. Lateral metasternum with 5 or 6 long hairs. The ventral metasternum is distinctly chitinized in its full length, without pile but micropubescent; it is distinctly separated from the long, fully chitinized archlike plate over the postmetacoxal area, also pubescent only. Tegula pubescent only.

Legs: Anterior and middle femora stout without being swollen; the hind pair is distinctly elongate, spindlelike on the basal third, distinctly though gently dilated apically; the dorsal pile of all the femora and tibiae is subappressed and setate. The following complement of bristles is present: on the hind femur a single, rather long, stout dorsolateral, subapical bristle matched by a similar dorsomedial bristle. There are 2 other dorsomedial bristles on the outer half and there is a row of 6 stout, ventrolateral bristles. This tibia is distinctly dilated gradually towards the apex, it is only four-fifths as long as the hind femur and lacks a ventral brush of setae. The hind tibia has the following bristles: 3 long, strong, dorsomedial bristles, at the base, the middle, and the outer third; 3 shorter, dorsolateral and 2 stout ventrolateral on the outer half, besides 3 quite prominent, long, stout, ventromedial bristles. Apex with prominent, long, stout bristles, 1 dorsomedial, 1 medial, 3 ventral, 1 ventrolateral, and 1 dorsolateral. The middle femur has a prominent, long, anterior bristle near the outer fourth, also a posterior, subapical bristle; its tibia has 2 long, slender, anterodorsal, 3 posterodorsal, 3 to 4 posterior, and 2 ventral bristles. The first ventral bristle on the basal third is quite long, the second on the distal third is stout. Anterior femur with only short setate pile; its tibia has weak bristles, with 4 posterodorsal, 4 or 5 posterior and 3 ventral, the element at the basal third is quite long. Apex without spine. Tarsi slender, the anterior basitarsus a little longer than the next 2 segments; all tarsi end in slender, sharp claws chiefly curved at the apex, well developed pulvilli and slender, bristlelike empodium.

Wings: The marginal cell is widely open, anterior branch of the third vein ends at or just above the wing apex, posterior branch immediately behind the wing apex; the second submarginal cell is rather strongly arched anterobasally, and anterior crossvein situated just beyond the middle of the discal cell. All the posterior cells are widely open and not at all narrowed. Anal cell closed with a short stalk; middle end vein of the second basal cell very short, or almost absent. Alula linear and narrow; ambient vein ends at the anal cell.

Abdomen: The abdomen is slender, elongate, a little longer than the wings. The sides of the abdomen are parallel, distinctly more narrow than the mesonotum, subcylindrical, the sides more or less rolled and sometimes a little flattened over the middles of the tergites. The second to the fifth segments are distinctly elongate. In the male are eight tergites, the seventh three-fourths as long as the sixth, the eighth is half as long as the seventh. Female with eight tergites, the eighth is three-fourths as long as the seventh. Pile of abdomen moderately abundant, subappressed, setate and short with some long, fine pile laterally on the sides of the first, second, and base of the third tergites. First tergite laterally with stiff hairs only. Male terminalia not rotate; the epandrium is elongate, split to the base into superior forceps. The hypandrium forms a long, medially extended process. Female terminalia with 4 or 5 pairs of long, slender, slightly spatulate, spoonlike spines.

Distribution: Ethiopian: *Rhabdogaster maculipennis* Engel (1929); *nudus* Loew (1858).

Genus *Psilinus* Wulp

Figures 1105, 1114, 1587, 1962, 2049

Psilinus Wulp, Trans. Ent. Soc. London, 1899, p. 85, 1899. Type of genus: *Psilinus cinerascens* Wulp, 1899, by monotypy.

Small, slender, dark colored, pollinose flies with greatly reduced pile and bristles and rather short, flattened head, which is flattened from the anterior aspect. The general color is rather pale on account of the dense, greyish yellow or pale brown pollen and micropubescence. The mesonotum is high, prominent, strongly arched both anteriorly and posteriorly, the femora slender, the hind pair almost as thick at the base as through the middle and somewhat more elongate than the middle pair.

Very much like species of *Anisopogon* Loew and also quite similar to *Rhabdogaster* Loew; probably related to both. It is of the same size and general appearance as *Rhabdogaster* and apparently both genera have the postmetacoxal arch chitinized; I find comparatively few differences between them. The vertex is more deeply excavated, and from a dorsal aspect is rather strongly flared and excavated posteromedially; the proboscis is more stout, slightly swollen toward the base from the dorsal aspect, a little compressed laterally with a well developed, medial ridge and bluntly rounded apex. The hind femur in *Rhabdogaster* is distinctly spindle-shaped on the basal half and the vertex is very little excavated. Length 8 or 9 mm.

I have twice examined from the Hope Collection at Oxford University, England, the specimen of *Psilinus cinerascens* (type No. 7701) which was believed to be Wulp's type of *cinerascens*. I failed to note the absence of pulvilli, although I compared this fly critically with a specimen of *Rhabdogaster nudus* and at that time I could see no difference between the two, except that *Rhabdogaster* definitely has the postmetacoxal area forming a chitinized arch, as in *Atomosia* Macquart of the Laphriinae. It appeared to me that the postmetacoxal region of this Hope Museum specimen of *Psilinus cinerascens* also had the postmetacoxal area chitinized, but because of the position of the pin and the condition of the specimen I could not make certain of this point. If it is chitinized and pulvilli are present, it will fall in the genus *Rhabdogaster;* if not chitinized and pulvilli are present it will go to *Anisopogon;* if pulvilli are absent, as Wulp stated in his description, it is a valid genus, related to both *Anisopogon* and *Rhabdogaster.* While my redescription of *Psilinus cinerascens* affirms the presence of pulvilli, and Wulp's description is based on their absence, further material is needed and more study, as the above specimen was in a very poor state of preservation, and I may be mistaken in assuming it to be Wulp's type. Wulp compared his specimen with *Rhadinus* Loew and *Leptogaster* Meigen, both of which lack pulvilli, and it does not seem likely that he was mistaken about the absence of pulvilli.

Head, lateral aspect: Face extremely short, plane with the eyes and for the most of its length barely visible near the epistoma, this portion rounded and retreating. Epistoma small, moderately oblique, concave and bare. Occiput with a fringe of stiff, yellowish, bristly hairs dorsally and along the middle. These hairs are placed rather considerably back from the eye margin. Ventral pile delicate, longer and also yellowish white. The eye is plane posteriorly through the middle, rather strongly recessive below on the lower third. Proboscis slightly compressed toward the apex but rather short and extended slightly downward and chiefly forward beyond the face but not quite to the end of the mystax. Palpus comparatively large, clearly of two segments, with the first segment excavated, the second segment considerably longer than the first and placed at an angle with rounded, closed, blunt apex, which bears long, yellow hairs laterally and ventrally, but none at apex. Antenna attached a little above the middle of the head. Third segment now missing.

Head, anterior aspect: Face greyish white micropubescent or pollinose with a number of scattered, rather long, very slender bristles or bristly hairs, which are pale yellow and confined to the lower half of the face. Remainder of face without pile. Front coarsely pubescent, greyish white, without pile or bristles. Ocellarium large, rather high with vertical sides, the anterior ocellus considerably enlarged and convex, the whole without pile, although placed deeply on the posterior slope there are 2 or 3 short hairs. Anterior eye facets rather strongly enlarged over the medial half.

Thorax: Mesonotum rather high and strongly convex and almost as convex posteriorly. It is densely appressed, greyish to brownish yellow micropubescent or pollinose. There is a single row of 5 or 6 very fine, short, scanty, acrostical hairs separated by a rather wide, micropubescent space and 1 row of fine, scattered, dorsocentral, bristly hairs anteriorly; the pale dorsocentral bristles remain extremely fine but become considerly longer behind the suture; on the sides of the mesonotum there are 2 notopleural bristles. There are at most 2 or 3 very weak, bristly hairs on the supraalar region. Postalar callosity with only short pile. Scutellum with at least several pairs of very slender, moderately long, upturned, stiff, yellow, bristly hairs; the scutellum is yellow pollinose, without pile. Pronotum with stiff or bristly hairs; there is a little, very delicate pile on the lateral pronotum and the propleuron. Metanotal slopes bulbous, micropubescent only; hypopleuron with high micropubescence only; metapleuron with 6 or 8 long, slender, yellow, bristly hairs. There are 2 or 3 hairs on the upper posterior sternopleuron; mesopleuron with 2 or 3 weak hairs; pteropleuron without pile. Pleuron brownish black and densely pale yellowish brown pollinose. Lateral metasternum with 7 or 8 fine, long hairs; ventral metasternum similarly pilose; postmetacoxal area with a long, completely chitinized arch.

Legs: The legs are slender; the hind femur is short, appressed pilose; it has a pair of dorsoapical, bristly hairs. There is a row of fine, long, pale, stiff, bristly hairs ventrolaterally and a still longer row of 8 or 9 bristly hairs ventromedially, and additional, shorter, erect pile. Dorsal pile appressed. Tibia with weak pile on the distal half and with 2 dorsal, 2 ventral, 1 lateral, and 2 or 3 medial bristly hairs. Apex with 2 dorsal, 1 lateral, and 1 or 2 medial, pale bristles. There are 2 or 3 black, ventral, bristly hairs. Middle femur with long, fine pile beneath and with 1 weak, subapical anterodorsal, bristly hair, also with several, weak, long, yellowish bristles ventrally. Middle tibia with 3 moderately strong, long, anterior bristles, 4 posterior bristles, and 3 or 4 ventral bristles. Anterior femur without bristles. Anterior tibia with 3 short dorsal and 4 long, slender, posterior bristles; apex without spine. Claws slightly curved and sharp; pulvilli three-fourths as long as claws; empodium long and slender.

Wings: All posterior cells widely open. The ambient vein ends sharply at the end of the fourth posterior cell.

Abdomen: The abdomen is slender, with nearly parallel sides, subcylindrical, slightly flattened in the middles of the first five tergites; first tergite about a fourth as long as the second. Abdomen densely brownish ochraceus pollinose, with short, scanty, suberect, reddish pile. Sides of first tergite with a few, long, stiff, pale hairs. There are eight well developed tergites. Ovipositor with 5 pairs of rather sharp, reddish brown spines laterally and paired, flaplike lobes below held together in a V-shaped position.

Distribution: Ethiopian: *Psilinus cinerascens* Wulp (1899). From Aden.

I quote Wulp's description:

> Belongs to the Dasypogoninae without terminal spur to the front tibiae and without pulvilli.
>
> Small, slender, not hairy. Front very slightly excavated; ocelli distinct; face flattened, narrower than the eyes, with

parallel sides; mystax ascending to one-third of the face; eyes large, prominent. Antennae slender; the third joint much longer than the basal joints together, pointed at the tip; terminal style distinct, elongate, two-jointed. Thorax and scutellum without bristles; the abdomen long and slender; the anal segment (female) with some small spines. Legs moderately long, the hind pair scarcely longer and somewhat more robust than the others; first tarsal joint as long as the two or three following joints together; foot-claws long; pulvilli absent. In the wings all the posterior cells are open and not constricted; the fourth posterior cell issues from the second basal cell; the third basal cell is closed at the margin of the wing.

This genus is related to *Rhadinus*, but differs in the mystax, which does not ascend to the antennae; the total want of bristles on the thorax and scutellum; the less excavated front, the more elongate antennae, and the not closed fourth posterior cell. From Leptogaster it differs in the hind legs, which are less elongate and of which the femora and tibiae are not club-shaped, the tibiae being gradually and only slightly enlarged towards the tip.

Genus *Lycostomus* Hermann

FIGURES 535, 1104, 1113, 1755, 1862

Lycostomus Hermann, Zeitschr. syst. Hymen. und Dipt., vol. 7, p. 4, 1907. Type of genus: *Lycostomus albifacies* Hermann, 1907, by original designation.

Flies of medium size, which will be rather readily recognized by the ventrally produced and beaklike face, together with the almost complete absence of excavation at the vertex. Wings hyaline with generalized venation. Its relations are dubious. While *Ancylorrhynchus* Latreille has no vertical excavation, its peculiar proboscis sets it rather far from *Lycostomus*. Length 12 mm.

Head, lateral aspect: The head is long and accentuated by the added length of the conical, peaked, and produced face. The face is extended forward to an increasing extent toward the bottom of the head, with the ventral surface plane and truncate. This results in the face appearing as a prominent, bluntly pointed cone. The occiput is prominent and the pile of the occiput and vertex is fine and white, rather long over the occiput; bristles absent. Posterior eye margin rather strongly convex and the eye descends below the face. Epistomal area large, slightly oblique and exposed. The proboscis is short, slightly attenuate, directed obliquely forward, its apex short pilose. Palpus of two segments; the second segment is a little shorter and apparently more or less fused, but both cylindrical; the apical segment is distinctly opened and porous apically. Basal segment split along the dorsomedial surface. The antenna is missing from the unique type.

Head, anterior aspect: The face is unusually wide, more than a third the head width and the sides parallel. It is densely white pollinose and this same pollen extends over the front and vertex. Middle apex of face with a few, short, downwardly directed, stout, yellowish white bristles in 2 rows; the total number of bristles is 18. The front and vertex are considerably expanded, the vertex not at all excavated. Ocellar protuberance extremely low, slanting backward, bearing minute hair.

Thorax: The mesonotum is everywhere densely, grey pollinose and with rather fine, subappressed, greyish white pile. The humerus is orange brown and pilose. The short, rather weak, white lateral bristles consist of 3 notopleural, 3 supraalar, 1 postalar, and 2 pairs of bristles on the scutellum, the outer pair weak and both pairs convergent. The flat scutellar disc has 15 to 20 convergent hairs. There are bristles on the pleuron but the pronotal collar and whole propleuron is densely long, white pilose. The propleuron is fused; hypopleuron pubescent only; mesopleuron pilose behind and above; pteropleuron pubescent only; metapleuron with 5 or 6 weak, short, slender bristles. The metanotal slopes are bullose and micropubescent only.

Legs: The hind femur is rather strongly thickened through the middle, narrowed at the immediate apex and for a somewhat longer distance basally. It is a little more than twice as thick distally as basally. The bristles are extremely short, stout, pale and tuberculate. The bristles of this femur consist of 2 lateral at the apical third, 1 dorsal near the apex, and 3 ventrolateral at the apical third, besides 3 or 4 ventromedial elements at the outer half. The pile is dense, short, quite flat appressed and pale brownish red or yellow. The femur is slightly elongate. The tibia is equally long, slender at base, 1½ times as thick apically with double lateral row of minute, short, yellow bristles; each row contains 4 or 5 bristles, and there is an additional double row of 3 or 4 longer, ventral bristles confined to the outer half. Tarsus short, the basitarsus as long as the next two segments. The middle and anterior femora are apparently without bristles. The middle tibia has 5 rather short, posteroventral, 5 short dorsal, 4 short anteroventral bristles, and the anterior tibia has 4 to 6 extremely short dorsal bristles or setae extending the full length of the tibia and also with slightly longer, posteroventral bristles on the outer half and 6 to 7 short posterior bristles. Apex with a circlet of spines on the lower half and 2 dorsal bristles. No spine present. The tarsi are short, the claws moderately long, sharp and arched from the base, and the pulvilli nearly as long as the claw, rounded apically; empodium nearly as long as pulvilli.

Wings: The marginal cell is widely open. Fourth posterior cell is closed in the margin; anal cell narrowly open. The second posterior cell is open the full width but both the end veins of the discal cell are nearly equal in length, the upper one shorter; second basal cell ends in three veins, middle vein shortest; alula large, the ambient vein complete.

Abdomen: The abdomen is cylindrical, the first tergite rather short with slightly overlapping edge laterally and a medial crease anteriorly. On the sides the abdomen is slightly narrowed from the base of the second tergite and the remaining tergites are progressively narrowed; the sixth tergite is less than one-third the length of the second tergite, slightly longer than the first and three times as long as the seventh. Sides of the first tergite with 5 or 6 short, white bristles and considerable brownish white pile. Remaining tergites without lateral bristles or specialized posterior pile. All pile minute, short, subappressed, pale. The tergites are greyish yellow micropollinose with narrow, reddish brown posterior borders. In males seven tergites are visible. Male terminalia conspicuous. The epandrium is not split or cleft but has a medial, downwardly directed prong, is laterally flattened and spatulate and also bears pale, downwardly directed hairs. No females were seen.

Distribution: Ethiopian: *Lycostomus albifacies* Hermann (1907).

Genus *Ancylorrhynchus* Latreille

Figures 100, 534, 1111, 1120, 1785, 1822, 1823

Ancylorrhynchus Latreille, Familles naturelles du règne animal, Paris, p. 490, 1825. Type of genus: *Asilus glaucius* Rossi, 1790, by monotypy.

Xiphocera Macquart, Histoire naturelle insectes, diptères, vol. 1, p. 279, 1834. Type of genus: *Xiphocera percheronii* Macquart, 1834, by monotypy.

Elasmocera Rondani, Ann. Accad. Aspiranti Nat. Napoli, vol. 3, p. 153, 1845. Type of genus: *Elasmocera cingulata* Rondani, 1845, by monotypy.

Opegiocera Rondani, Ann. Accad. Aspiranti Nat. Napoli, vol. 3, p. 153, 1845, *nomen nudum.*

Xiphocerus Loew, Linnaea Entomologica, vol. 2, p. 470, 1847, *lapsus.*

Enchocera Blanchard, Histoire naturelle des insectes, vol. 3, p. 579, 1840.

Flies with mostly short pile, which are comparatively bare and without pollen. They have a rather robust, cylindroid abdomen, a generalized wing in which all cells are open and an unusually elongate, slender antenna. Females have acanthophorites, which bear spines and the lateral processes have bristles. These flies are readily recognized by the not excavated front and the curious, characteristic, short, bulbous and retrorse proboscis. They appear to have no close relatives, but perhaps come near *Scylaticus Loew.* Length 15 to 20 mm.

Head, lateral aspect: The face is rather moderately produced, with a nearly straight or very slightly convex profile. The eye is equally prominent above and below, without recession but longer medially and somewhat flattened anteriorly. The occiput is unusually stout and prominent, especially at the vertex; its pile consists of a dense, wide, dorsal band which is somewhat more narrow across the middle of the occiput and less extensive below. Bristles are absent; the pile is stiff. The proboscis is short, exceptionally swollen at the base, with a blunt apex directed backward so that in anterior profile the proboscis is greatly curved and convex; the apex bears short, stiff pile, the base behind on the swollen part bears numerous, stiff, bristly hairs. Palpus large, the second segment swollen, with nearly closed pore at apex. The first segment is excavated; the second segment has numerous, long, stiff bristles on all sides except the middle. The antenna is located at the upper fourth of the head and is exceptionally long, being nearly twice as long as the head. The first segment is stout, three or more times as long as the very short, beadlike, second segment. The third segment is four times as long as the first two segments together and strongly compressed laterally; it is only a little wider towards the middle, gently tapered at the apex, and ends in an oblique, oval, rather small opening which contains a minute spine. First segment with a few setae dorsally and longer setae laterally at the base and in the middle with 2 or 3 moderately stout, long bristles.

Head, anterior aspect: The height of the head is five-sevenths of the width. The face below the antenna is about a third of the head width, with nearly parallel sides. Subepistomal area short, nearly horizontal or slightly oblique, shallowly concave and bare. The face is micropubescent but pollinose only on the lateral epistomal margin. Beginning just below the antenna the face bears very dense, abundant, rather long, stiff, bristly pile which is longer and more abundant below and directed obliquely downward. The front is slightly divergent and continued in the same way on up to the vertex. The sides of the front have numerous, long stiff hairs and a submedial patch of hairs. Vertex without excavation, the ocellarium large, with vertical sides extended backward as a convex, marginally creased ridge; the ocelli are swollen; the middle bears 6 or more coarse hairs on each side. Central eye facets slightly enlarged.

Thorax: The mesonotum with pollen only medially on the humerus and laterally on the notopleural area. Pleuron with dustlike pollen. Pile of mesonotum fine, erect and scanty. Humerus pilose, with 6 or 7 weak bristles anteroventrally. The lateral bristles of the mesonotum are moderately stout and long and consist of 2 notopleural, 2 supraalar, 3 postalar, and 8 pairs of scutellar bristles. Some long, prescutellar pile is present. Propleuron with rather scattered, long pile. Anterior collar with 7 or 8 pairs of weak bristles; mesopleuron and upper sternopleuron and the pteropleuron with some fine, scattered pile. Upper pteropleuron with 3 or 4 bristles; metapleuron with ventral, stout, long bristles and more numerous, slender bristles above. Metanotal slopes without pile or bristles. Metasternal slopes and the metasternum with fine, long pile. Postmetacoxal area membranous. Hypopleuron with a patch spot of pubescence. Posterior basalare with a tuft of 7 or 8 long bristles, 3 or 4 of these are stout. Prosternum dissociated.

Legs: The anterior 4 femora are stout but not thickened. Hind femur and its tibia elongate; this femur is slightly widened distally; it bears appressed, dorsal and lateral pile, no apical bristles, 1 dorsolateral at the outer fifth, 6 or 7 lateral, 12 to 14 ventral, including 2 at the apex, and 6 to 8 ventromedial bristles. The hind tibia bears 8 dorsal, 6 lateral, 6 ventrolateral bristles, and its apex has only 8 to 10 bristles. There is a brush of setae present, extending on to the first two tarsal segments. Middle femur with 5 anterior, 1 anterodorsal at the outer third, 1 posterior near the apex, and some 15 sharp, slender, ventral bristles. Its elongate tibia bears 8 dorsal, 5 or 6 anterodorsal, 10 to 12 posterior, 6 to 8 posteroventral, and 4 or 5 ventral bristles.

Anterior femur with 2 bristles anteriorly at apex, 2 posteriorly at the outer third, and 6 to 8 sharp, fine, ventral bristles. Tibial complement similar to that of the middle tibia, the ventral bristles lacking. Apex without spine. All the tarsi end in long, spatulate pulvilli with marginal fringe, basally stout empodium, and sharp claws.

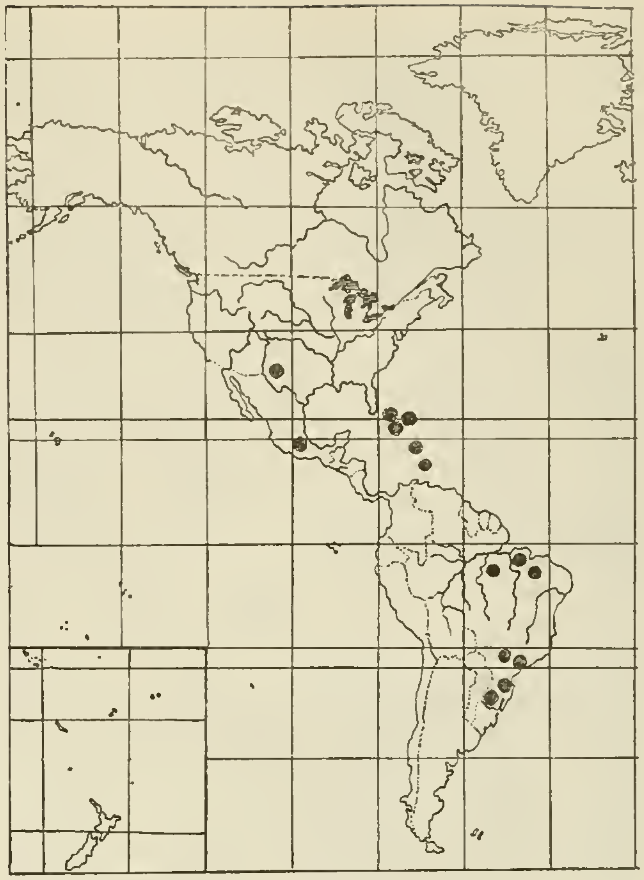
Wings: The marginal cell is widely open. The anterior branch of third vein ends close to the apex or just above; the second posterior cell begins close to the end of the discal cell. All posterior cells open, the fourth somewhat narrowed; anal cell open, second basal cell ends in 3 veins, middle vein short; the alula is large, the ambient vein complete.

Abdomen: The abdomen is robust, strongly convex and subcylindrical. The first tergite is somewhat swollen laterally. Abdomen nearly or quite as long as the wings. Pile of abdomen abundant, fine and suberect, with patches of stiff setae posteriorly and sublaterally on second and fifth tergites only. Only the first tergite has bristles and these are extremely numerous, long and relatively slender and mixed with additional, stiff pile. The sternites bear long, erect, stiff pile. Males and females with eight tergites. In the male the epandrium is cleft nearly or quite up to the base, with a distinct gap between the apposed halves. Gonopod well developed but not as long as the superior forceps. Hypandrium only moderately long, leaving the cavity of the terminalia widely open much as in *Scylaticus* Loew or *Bathypogon* Loew. The acanthophorites have about 7 pairs of spoonlike spines; the lateral processes bear weak, spinous bristles below. Last sternite undivided and with very short, posterior, upturned flap.

Distribution: Palaearctic: *Ancylorrhynchus argyrogaster* Séguy (1932); *bicolor* Becker in Becker and Stein (1913); *brussensis* Schiner (1867); *cingulatus* Rondani (1845); *elbaiensis* Efflatoun (1937); *farinosus* Becker in Becker and Stein (1913); *glaucius* Rossi (1790) [=*pictus* Wiedemann (1821), *variegatus* Pallas in Wiedemann (1818)]; *gummigutta* Becker (1906); *limbatus* Fabricius (1794) [=*laufferi* Strobl (1906)]; *longicornis* Schiner (1867); *rufocinctus* Séguy (1930); *senex* Dufour (1833); *tristis* Séguy (1932); *vultur* Séguy (1930).

Ethiopian: *Ancylorrhynchus apicalis* Curran (1934); *braunsi* Bromley (1936); *cruciger* Loew (1858); *crux* Bezzi (1908); *fortipes* Walker (1857); *fulvicollis* Bigot (1878); *funebris* Bromley (1936); *humeralis* Wiedemann (1821); *hyaeiformis* Speiser (1910); *insignis* Bromley (1936); *maculatus* Bigot (1878); *magnificus* Bromley (1936); *munroi* Bromley (1936); *nomada* Wiedemann (1828); *nynkinensis* Speiser (1910); *pretoriensis* Bromley (1936); *quadrimaculatus* Loew (1858); *reynaudii* Macquart (1838); *splendens* Bromley (1936); *susurrus* Karsch (1879); *tricolor* Loew (1863), *tricolor reynaudii* Macquart (1838); *unifasciatus* Loew (1858); *variegatus* Bigot (1878); *zonalis* Bromley (1936).

Oriental: *Ancylorrhynchus complacitus* Wulp (1872); *percheronii* Macquart (1834).



Text-Figure 13.—Pattern of distribution of the genus *Plesiomma* Macquart.

Australian: *Ancylorrhynchus plecoides* de Meijere (1913); *rufipes* de Meijere (1913); *rufithorax* Doleschall (1858).

Country unknown: *Ancylorrhynchus agathyllus* Walker (1849).

All three species listed under Australian are from New Guinea or an island west of New Guinea.

Genus *Plesiomma* Macquart

Figures 75B, 506, 991, 1000, 1738, 1772, 1969, 2010

Plesiomma Macquart, Diptères exotiques, vol. 1, pt. 2, p. 54, 1838. Type of genus: *Plesiomma testaceum* Macquart, 1838. Designated by Back, 1909, the first of 2 species.

Dolichodes Macquart, Diptères exotiques, vol. 1, pt. 2, p. 49, 1838. Type of genus: *Dolichodes ferruginea* Macquart, 1838, by monotypy.

Plesioma Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 702, 1866, *lapsus*.

Plesiomma has three subgenera: *Boropis*, new subgenus, *Dapsilochaetus*, new subgenus, *Cystoprosopa*, new subgenus.

Slender, elongate flies of medium to large size, which will be recognized by the strongly divergent face; very wide below, it is gradually but strongly narrowed above and the front narrow in the same proportion, so that the vertex is quite narrow. Face without pile and bristles are restricted to an epistomal row and are stout. Wings tinged with yellow, brown or blackish in color. Legs elongate, scutellum without bristles. Length 12 to 30 mm.

Head, lateral aspect: Face greatly reduced in height and at the base of the antenna nearly plane with the eye. It is gently and gradually produced below but is never extensive. The epistoma is exceptionally large and oblique and concave to a varying extent. Occiput only moderately developed, almost concave or depressed at the eye margin and sloping gradually inward. Ventrally the occiput bears only a few, coarse or fine, scattered hairs; weak bristles begin along the middle and become much stouter dorsally. They are usually present in a row. Proboscis stout, especially at the base and gently tapered or attenuate towards the apex which is bluntly rounded. There is a medial, dorsal ridge generally more extensive towards the base and the apex bears fine pile above and below. Palpus clearly composed of two segments, the first segment quite short, more or less fused at least basally and apparently cylindrical apically. Second segment cylindrical, the immediate apex a little narrowed and bearing a few, slender hairs or bristles. The antenna is attached near the middle of the head but generally is only moderately long; it is approximately as long as the head if microsegment is included. The first two segments are equal in length and at least 1½ times as long as wide or a little longer. Dorsally these segments bear long setae and ventrolaterally each has several slender bristles. Third segment as long or slightly longer than the combined length of the first two segments, with several dorsal bristles and with two microsegments, the first of which may be quite short, the second considerably longer, attenuate, with apical spine. The third segment is a little widened, especially along the middle on its ventral aspect, so that it may appear to be long oval in shape.

Head, anterior aspect: The head is very peculiar from the anterior view; it is more than 1½ times as wide as high. The face below the antenna is wide but very much wider below, being conspicuously widened and again the front is narrowed at the same progressive rate, so that the vertex is quite narrow and the entire front vertex and face appear triangular. Another peculiarity consists in the remarkably deep, conspicuous pockets on each side of the epistoma, which in some species are continued through to the posterior side. These pockets represent the points of invagination of the anterior arms of the tentorium. Face densely pollinose, without pile but with a single row of 6 to 10 quite long, stout, curved bristles, which extend forward nearly as far as the proboscis. Front as described, strongly convergent, flat and pollinose and without pile or bristles in all species. Ocellarium large but quite low, with vertical sides and large ocelli and with a pair of slender bristles arising behind the ocelli, and sometimes a pair of small, bristly hairs between the ocelli, or also a pair of bristles between the ocelli. Vertex only moderately excavated.

Thorax: The mesonotum is moderately high and arched, pollinose with scanty, bristly or long, setate pile and prominent, long, stout bristles. There is a wide, bare band medially containing acrostical setae and dorsocentral bristles are often well developed in front of the suture and more prominent behind. The complement of bristles consists of 3 or 4 stout, anterior humeral bristles, 3 notopleural, 1 supraalar, 2 on the postalar callosity, and 1 or 2 pairs of stout, conspicuous bristles on the scutellum or none at all. Metanotal callosity pollinose only. Pleuron pollinose; the pronotum has weak bristles but none laterally. Metapleuron with an oblique row of 5 or 6 bristles and other long, bristly hairs. Postmetacoxal area membranous; only the lateral metasternum bears pile; prosternum fully dissociated.

Legs: The legs are unusually long, especially the hind pair, and they are rather densely appressed setate, with the bristles on the tibia rather short but stout and very few on the femora. Hind femur with 1 ventrolateral bristle at the apex, 1 dorsomedial bristle subapically. Anterior and middle femora each with a stout, posterodorsal, subapical bristle and a smaller, anteroventral, subapical bristle. Middle femur with a long, basal, ventral bristle. Anterior and middle trochanters with very long, stout, curved bristles at the apex. Posterior tibia with 6 dorsolateral, 5 dorsomedial, and 4 ventrolateral bristles. Apex with 8 bristles. Hind basitarsus as long as the next 4 segments. Anterior tibia with 4 anterodorsal, 6 smaller posterodorsal, 6 posteroventral, and 2 extraordinarily long ventral bristles on the outer half. The last 2 of the anterodorsal bristles are nearly as long as the ventral bristles. Anterior tibia with 3 basal, weak, anterodorsal, 6 equally small posterodorsal, 3 small and 2 long posteroventral bristles. Apex without spine. Claws long, sharp, bent at apex; pulvilli large; the empodium bladelike.

Wings: The marginal cell is widely open, the anterior branch of the third vein ends at wing apex, and the second submarginal cell at its base is expanded only anteriorly. First posterior cell widely open, the fourth distinctly narrowed. Anal cell closed and stalked, or closed in the margin. Alula moderately wide; ambient vein complete; whole wing villose and the whole wing characteristically tinged with brown or yellow or both.

Abdomen: The abdomen is elongate, rather slender, subcylindrical and in many species very slightly clavate so that the fifth to sixth segments may be slightly wider. Surface rather densely covered with fine, appressed setae and at most a few, scattered hairs laterally along the sides of the first and second segments. Sides of first segment with 6 or 7 bristles which are rather stout and some bristly hairs. Posteriorly the second segment often has 2 or 3 moderately stout, lateral bristles but they may be absent. Males with eight tergites but the eighth quite short. Females with eight segments, the last being half as long or longer than the seventh. Male terminalia rotate at least a fourth, the epandrium cleft but the sides overlapping; the hypandrium is broad, long and extensive, the gonopod conspicuous, laterally convex, and with terminal appendage or process. Genital cavity small but exposed. Female terminalia with acanthophorites and 5 pairs of large, blunt, spoonlike spines. Eighth sternite with medial cleft and ventrally depressed.

Distribution: Nearctic: *Plesiomma unicolor* Loew (1866).

Neotropical: *Plesiomma angusta* Macquart (1848); *atrum* Bromley (1929); *caedens* Wiedemann (1828); *caminarium* Wiedemann (1828); *ferruginea* Macquart (1838); *fuliginosus* Wiedemann (1821); *funestum* Loew (1861) [=*lugubre* Jaennicke (1867)]; *haemorrhoum* Fabricius (1805); *indecorum* Loew (1866) [=*longiventre* Schiner (1867)]; *inflatus*, new species; *jungens* Schiner (1867); *leptogastrum* Loew (1866); *lineatum* Fabricius (1781) [=*macrum* Loew (1866)]; *salti* Bromley (1929); *semirufum* Wiedemann (1828); *sepia*, new species; *testaceum* Fabricius (1805).

Country unknown: *Plesiomma testaceum* Macquart (1838).

Boropis, new subgenus

Type of subgenus: *Asilus lineatum* Fabricius (1781).

For those species with no spines on the scutellum the name *Boropis*, new subgenus is proposed.

Dapsilochaetus, new subgenus

Type of subgenus: *Dapsilochaetus inflatus*, new species.

Related to *Plesiomma* Macquart. These flies are distinguished by the swollen antennal segments and the presence of numerous, very stout bristles on the whole lower half of the face. Mesonotum with well developed acrostical bristles and long, slender, dorsocentral bristles, which extend nearly to the humerus. Scutellum with 3 pairs of bristles. Length 17 mm.

Head, lateral aspect: The head is of medium length, face rather prominent, slightly more extensive below but of very little height. The cheeks are undeveloped but the subepistoma is quite large, and oblique, and extends well below the eye. Occiput rather prominent sublaterally with coarse pile ventrally and weak bristles dorsally. Proboscis quite broad on the basal two-thirds from the dorsal aspect so that the whole is rather depressed dorsoventrally. Laterally the base is swollen below and the apex bears numerous, stiff hairs and is longitudinally striate laterally. Palpus unusually robust and stout on both segments, which are of equal length, the first segment is not excavated, both are barrel-shaped and bear numerous, long, bristly hairs; none at the apex on the second segment. The antenna is attached a little above the middle of the head, the first segment is exceptionally stout and inflated, a little longer than wide and of nearly the same length as the second segment, which is not as thick. The first segment is densely covered with moderately long, slender bristles and bristly hairs on the dorsal and dorsomedial surfaces, with equally numerous, similar but longer hairs and bristles on the whole lateral and ventral surfaces. Second segment similar but with the hairs and bristles shorter. The third segment is short and broad from lateral aspect, especially in the middle; it is a little narrowed at base and apex; it bears 6 or 7 rather long, dorsal bristles extending beyond the apex. At the apex it has a short microsegment followed by another which is stout, three times as long as the first microsegment and directed obliquely downward and has a minute, apical spine.

Head, anterior aspect: The head is quite similar to that of *Plesiomma* and has deep, ventrolateral pockets below and along the eye margin. Face pubescent, the upper half without pile, the lower half with several rows of closely set, stout, moderately long, curved, reddish bristles. Front with a few setae scattered through the middle. Vertex with 3 pairs of prominent bristles between the ocelli, 2 pairs of long, bristly hairs anteriorly, and 2 or 3 pairs of equally stout, long, reddish bristles behind the ocelli.

Thorax: The thorax is similar to that of *Plesiomma*. Mesonotum with pollen, and an acrostical row of slender bristles and somewhat more prominent, long, but slender, dorsocentral bristles which begin behind the humerus. Mesonotum medial to the humerus and laterally with a number of long, coarse hairs. Lateral bristles stout. There are 3 notopleural, 1 supraalar, 1 on the postalar callosity, and 3 pairs on the scutellum. Humerus with several slender bristles anteriorly and other bristly hairs. Postmetacoxal area membranous; prosternum dissociated.

Legs: The legs are similar to those of *Plesiomma*.

Wings: The wings are similar to *Plesiomma*. Posterior crossvein short, marginal cell open by nearly its maximal width, rather dark sepia in color.

Abdomen: The abdomen is elongate and quite similar to that of *Plesiomma*.

Dapsilochaetus inflatus, new species

Length 16 mm. Male. Head: Vertex and occiput black, the upper sides of the face reddish brown and densely covered with reddish brown micropubescence. The middle of the face and the ventral part are blackish and covered with a dark, micropubescence. Cheeks below eyes and the ventral part of occiput are rather light, reddish brown. Palpus composed distinctly of two segments, rather light brownish yellow, with a blackish spot dorsally at the apex of the last segment; the second segment is attached to the first a little to one side of the apex; both segments bear numerous, stiff, long, reddish yellow hairs. Proboscis black with the base ventrally becoming light reddish brown and this part bears some long, reddish hairs. Occiput bears a submarginal band of moderately stiff, bright, reddish, bristly hairs, which become a little more conspicuous and stout dorsally. Ocellarium with 6 pairs of conspicuous, moderately long, reddish bristles.

Antenna at least as long as the head and unusually stout with the first segment rather swollen and inflated.

This segment is reddish brown, with dense, conspicuous, long, black, bristly pile dorsally, laterally, and still longer and somewhat more bristly pile ventrally; 2 or 3 of the ventral bristles are reddish. Second segment is as long as the first and also bears numerous, black, rather long, bristly hairs on all sides, which, however, are somewhat shorter than those of the first segment and there are fewer lateral elements and the hairs tend to be directed downward and upward; also 1 or 2 of the ventral elements are reddish. Third segment with 5 or 6 conspicuous, dorsal, black bristles; this segment is quite black in color, slightly longer than the second segment and bears at the apex a short, downturned, bristle-tipped, slender microsegment. The face is not very high, a little shorter than the prominent, oblique, subepistoma. On the lower half of the face there are numerous, long, curved, stout, bright reddish bristles, which tend to change to black apically.

Thorax: Mesonotum quite black, except at the lateral margin, the humerus, the postalar callosity and a small, medial extension of the lateral stripe just behind the humerus, which are all light reddish brown. These reddish areas are covered thinly with very fine, reddish yellow micropubescence or pollen, and in some lights there is a conspicuous stripe of red micropubescence running down the dorsocentral bristle row the entire length of the mesonotum. There is present a single, acrostical row of long, bristly hairs. Also there are well developed, long, slender, reddish, dorsocentral bristles beginning just past the humerus; in front of these are shorter hairs. Lateral bristles red; there are 3 notopleural, 1 supraalar, 2 or 3 bristles on the postalar callosity, and 3 pairs of slender, reddish bristles on the scutellum. Scutellum thick and black with the margin rounded. The pleuron is dark reddish brown except for black on the upper third of the mesopleuron, the whole of the propleuron and also a small, blackish spot ventrally in the middle of the hypopleuron. The metanotum beneath the scutellum is black but the metanotal callosity is red. Micropubescence of the upper mesopleuron red but over most of the middle pleuron it is yellowish white. Prosternum dissociated.

Legs: The legs are reddish brown with the tibiae and tarsi of the anterior four legs yellow. The pile is rather dense, coarse, bristly, appressed and black. Bristles, where present, are pale red. Hind femur with a small, red bristle at the apex ventrolaterally, another at the apex dorsomedially. The ventral surface of this femur bears a scattered fringe of long, blackish, bristly hairs. Claws black, the pulvilli dark brown.

Wings: The wings are uniformly dark reddish sepia brown, except at the end of the radial sector where there is a small, diffuse spot, which is somewhat lighter red. Entire wing is uniformly covered with dense, dark villi. All posterior cells widely open, the fourth posterior cell very slightly narrowed on the margin. Anal cell closed with a short stalk.

Abdomen: The abdomen is dark reddish brown, with the basal margin of the first tergite black. Also, the lateral margins of most of the tergites are narrowly darker in color. Sternites reddish brown with thin pollen the same color. Pile of abdomen short, appressed, setate and black but becoming longer on the sides of the sixth tergite and still longer on the seventh and eighth tergites. The whole terminalia are dark reddish brown with dense, long, blackish, bristly hairs and slender bristles. A few of the terminal, longer bristles are reddish and curve strongly toward the midline and these arise from the lateral apex of the gonopod.

Type. Male, Mount Basil, North Haiti, 4700 ft., Sept. 9, 1934, collected by Marston Bates. Type in the Museum of Comparative Zoology.

Cystoprosopa, new subgenus

Type of subgenus: *Cystoprosopa sepia*, new species.

Flies of medium size with comparatively slender, elongate, subclavate abdomen. Related to *Plesiomma* Macquart. The face is strongly inflated and swollen and is comparatively high with a low, nearly transverse subepistoma. Length 17 mm.

Head, lateral aspect: The head is unusually long and the face is prominent, strongly produced from above to below and distinctly convex. The inflated face is comparatively high, with the subepistoma large but nearly horizontal. The occiput is unusually tumid and swollen both above and below. Ventrally it bears coarse, scattered hairs and weak bristles in the middle, with somewhat stronger bristles on the upper third. The dorsal bristles form a loose patch behind the upper eye corners. Proboscis short, robust, narrowed at base, and bluntly narrowed at apex, which is anterodorsally truncate. The proboscis does not extend beyond the face. It has a low, dorsal keel or ridge over the middle and the ventral surface is somewhat curved and bears basally some short, bristly hairs. The apex has a few fine hairs above and below. Palpus composed of two segments, the first segment is short, excavated, the second spindle-shaped, with large, apical pore and several bristly hairs attached around the middle of the segment, none at apex. The antenna attached close to the plane of the vertex at the upper sixth of the head. It is elongate, at least as long as the head. The first segment is more than twice as long as wide and slightly longer than the second segment. It bears numerous, long setae dorsally and laterally, and ventrally a number of slender bristles, which are rather abundant. Second segment with setae above and below, and two slender bristles apically. The third segment is as long as the first two segments combined, long oval and in the middle about twice as wide as the second segment. On its dorsal surface are 15 or 20 short bristles or long setae and at the apex it has a conspicuous, short, wide, spoon-shaped microsegment with enclosed spine.

Head, anterior aspect: The width of the head is nearly twice the height, and wider below. The face is wide and below the antenna approximately a third the width of the head. It is very strongly widened below to at least half the head width. Although the face is higher than in related genera, the eye is conspicuously developed below the face with deep, pocketlike crease on each side. The surface of the face is covered with coarse, reddish brown micropubescence; pile is absent, except for 2 or 3 bristly hairs on each side immediately above the epistomal mystax. Mystax composed of a curved, transverse row of 12 quite short, stout, red bristles and above it 2 or 3 fine, equally short black bristles. Subepistoma pubescent also. The front is rather large, pollinose, and without pile. Vertex but little excavated with large, low ocellar tubercle which bears 2 short, fine bristles between the ocelli, 2 other bristles which arise behind the ocelli. The front and vertex are greatly narrowed in the same ratio as the upper face.

Thorax: The thorax is short and high with the mesonotum convex. Mesonotum pollinose with short, appressed, stout, acrostical setae and similar dorsocentral setae only differentiated posteriorly and which remains quite short to the scutellum. Lateral bristles short and stout. There are 3 notopleural, which are red, 1 fine, black supraalar bristle, and 1 pair of quite short, small bristles on the scutellar margin. Postalar callosity with setae only. Scutellum flat with strong, transverse grooves, and metanotum pollinose only. The pleuron is pollinose with greatly reduced pile restricted to the propleuron. Pronotum with 3 pairs of slender bristles and other pile. Metapleuron with 4 quite slender bristles and 2 or 3 fine, short hairs. Postmetacoxal area membranous; pronotum dissociated.

Legs: All the legs are rather elongate, especially the hind pair. They bear dense, appressed, fine setae on all surfaces and bristles are very few, except on the tibia and tarsi. Hind femur with a weak, short bristle dorsomedially near the apex, another ventrolaterally at the apex, sometimes absent. Hind tibia long and slender, with 3 quite short bristles dorsolaterally, 4 still shorter dorsomedially, and 2 equally short ventral bristles. Apex with 1 dorsal, 1 lateral, 1 long medial and 2 short medial, and 4 ventral bristles. Hind basitarsus longer than the succeeding segments. Middle femur and anterior femur without bristles. Middle tibia with 2 short, basal anterodorsal bristles, another in the middle, 2 longer bristles beyond; it has 3 minute posteroventral bristles and on the distal half ventrally there are 3 conspicuous, stout, attenuate, long, oblique bristles. Anterior tibia with near the base 2 minute, anterodorsal bristles, 4 similar posterodorsal bristles, and 2 long, distoventral bristles. Apex without spine but with very long anterior bristles. The anterior and middle basitarsi each nearly as long as the 4 succeeding segments. The claws are quite sharp, curved from the base, rather attenuate but stout at base; the pulvillus is long; the empodium long and bladelike with swollen base.

Wings: The wings are broad and rather deeply tinged with sepia brown; marginal cell widely open; all posterior cells widely open; the anal cell is closed in the margin. The posterior crossvein wanting, the anterior crossvein enters the discal cell a little beyond the middle and the third vein forks distinctly beyond the end of the discal cell. Alula small; ambient vein complete. The whole wing is villose.

Abdomen: The abdomen is elongate, comparatively slender, the first segment, however, nearly as wide as the mesonotum. It bears fine, appressed setae and only 2 or 3 long hairs on the sides of the first and second segments. First segment with 5 slender bristles laterally; the abdomen is narrowest at the end of the third segment and widest at the middle of the fifth segment. Eight segments in the female, the eighth nearly as long as the seventh, and the seventh almost as long as the sixth. Female terminalia with acanthophorites and 5 pairs of long, blunt, spoon-shaped spines. Eighth sternite with subcircular, depressed, posteromedial plate and a deep cleft.

Cystoprosopa sepia, new species

Length 16 mm. Female. Head: The exceptionally tumid occiput, the vertex, front, face and antenna are rather light reddish brown. The interocellar space of the small ocellar tubercle is blackish and the short, blunt, spoon-shaped microsegment and the extreme apex of the third antennal segment is likewise black. Proboscis short, not extending beyond the face; it is obliquely truncate at the apex, rather stout through the middle and reddish brown in color. Palpus of two segments, dark reddish brown and almost black below. The apex is attenuate, without bristles, although short, slender, weak, bristly hairs begin on all sides a short distance back from the apex; these are few and are dark brown. The occiput has scattered, reddish brown, bristly hairs over the middle, stiff pile below, and all of it scanty and at the top on the more swollen part there is a row of rather stout but short, light red bristles with a second, irregular row behind. Ocellarium with a pair of small, divergent, blackish bristles arising between the ocelli and widely separated and a pair of closely adjacent, similar bristles arising behind the ocelli. Front without pile or bristles; the micropubescence minute. Face strongly inflated and convex and without pile, except for 2 or 3 small, bristly setae lying in the middle above the ventromarginal row of bristles. On the ventral margin of the face on each side there is a circular, single row of 6 or 7 short, conspicuous, light red, rather stout bristles; above these there is a patch of 2 or 3 smaller, black bristles on each side.

The antenna is elongate, perhaps a little longer than the head and the first two segments comparatively slender and more yellowish than the third segment, which tends to be light red. First segment a little longer than the second and both bear rather numerous, long, black setae dorsally. Sides of first segment with 10 or 12 rather long, slender, sharp, black bristles; the ventromedial surface has black setae. Sides and apex of second segment with moderately long, black, bristly hairs and setae. Third segment dorsally with about 15 conspicuous, black, short bristles or setae.

Thorax: Thorax for the most part quite dark reddish brown. Down the middle of the mesonotum is an obscure, narrow, diffuse, blackish stripe that ends just beyond the middle of the mesonotum. Acrostical setae present but short, appressed, and black. There are dorsocentral setae, which remain short even to the scutellum and are scanty. There are scattered setae continued laterally over the anterior third of the mesonotum. Bristles consist of 3 rather short, reddish bristles on the notopleuron, 1 darker bristle above the wing, but only setae on the postalar callosity. Margin of the scutellum with a pair of quite small, short, blackish bristles. The scutellum is dark red, comparatively thin and with flat, wrinkled disc and a rounded margin. Pleuron very dark reddish brown. Metapleural bristles blackish and few. Anteriorly on the mesonotum is some scanty, light brownish yellow pollen. Prosternum dissociated.

Legs: The long, hind femur is black almost to the apex, where the color changes rather sharply to pale, brownish yellow; it is a little more brownish at the base. First four femora nearly black, becoming dark reddish brown and then yellowish brown at the apex but rather more diffusely and obscurely. Hind tibia brownish yellow on the basal half, diffusely changing to reddish sepia beyond, and the pile light red or yellowish on the basal half and dark distally. First four tibiae and all the tarsi are everywhere pale, brownish with yellow pile, which is abundant but appressed and setate in character. Bristles, where present, reddish yellow. There are 3 comparatively long bristles ventrally on the outer half of the middle tibia and the dorsal suface of this tibia has 2 short basal, 1 short middle bristle, and 2 longer apical bristles. Claws black, long and sharp, with only the extreme base yellowish. Pulvilli long, light brownish yellow.

Wings: The wings are uniformly tinged with reddish sepia brown, except that there is a narrow, diffuse streak of lighter brown in the marginal cell just above the anterior crossvein and again at the base of the discal cell and just above the posterior crossvein, which is almost wanting, and also at the base of the first and second basal cells. These areas appear as diffuse, somewhat lighter colored streaks. All posterior cells widely open, the fourth very slightly narrowed, the anal cell closed in the margin, the wing wholly villose.

Abdomen: The whole abdomen is very dark reddish brown with the first segment more blackish and the bristles of this tergite black. The pile is minute, flat appressed and reddish. Spines of the acanthophorites are reddish.

Type. Female, Alpuyeca, Morelos, Mexico, June 27, 1951. Collected by P. D. Hurd and in the collection of the University of California at Berkeley. One cotype, same place, July 3, 1951.

Genus *Hynirhynchus* Lindner

Hynirhynchus Lindner, Jhft. Ver. vaterl. Naturk. Würtemberg, Stuttgart, vol. 110, p. 32, 1955. Type of genus: *Hynirhynchus zebra* Lindner, 1955, by original designation.

The following description is from Lindner:

> The genus belongs in the subgroup of the Eremocneminae of Dasypogoninae. R–1 is open, t–1 is without the process curved like a claw. The third antennal segment is provided with a style. The form of the facial beard, as well as the formation of the hypopygium, is reminiscent in habitus of analogous phenomena which are known to us from the subgroups of the Dasypogoninae, which are so polymorphic.
>
> The genus is characterized by the formation of the proboscis, by the development of the antennal style, the facial beard, the wing venation, and the form of p.
>
> Head semicircular, front a little sunken. Antennae above the middle of the head. First segment about twice as long as the second, the third flat, with a peculiarly erect [or affixed] flattened style. Facial turbercle not very prominent, with facial beard directed ventrad. Its uppermost hairs stand at the upper limit of the tubercle at a distance from the base of the antenna corresponding to the length of the first segment. Occiput rather padded. Palpus with long bristles. Proboscis of a unique form comparable to a plowshare (fig. 1!). Mesonotum drawn forward like a hood. Scutellum small, with fine marginal setules. p–3 with apically somewhat clavately thickened f–3 and t–3 and a metatarus which is just as thick as t–3 on the end and about twice as long as it is thick. Setation moderately heavy [*or* strong]. Claws and pulvilli developed. Wing with R–1 and the posterior-marginal cells open. Abdomen slender, more than twice as long as the thorax. Hypopygium club-like [*or* nodular], curved ventrad.

Tribe Dasypogonini

To the Dasypogonini are assigned all those genera of the higher Dasypogoninae, in which the anterior tibia has an apical spine of some several types and at the same time the female has spines on the acanthophorites. This group contains about 50 genera; some of its larger groups are represented by*Saropogon* Loew, *Cophura* Osten Sacken, a New World genus with apparent relatives in Australia, and *Diogmites* Loew, the large New World genus of which there is also a possible relative in Australia. In Australia, moreover, there are in this tribe several peculiar genera, such as *Brachyrrhopala* Macquart and *Erythropogon* White. In the Ethiopian region there is the large, characteristic genus *Neolaparus* Williston, with a few Asiatic representatives.

I have not accepted the tribal status given to *Brachyrrhopala* by Hardy (1934) for the reason that this genus is too closely allied to *Saropogon* Loew and *Austrosaropogon* Hardy, which in turn are not themselves separated from *Dasypogon* Meigen by any wide or embrasive distinctions. The tribe Dasypogonini is entirely sufficient for all these related genera. Tribal status for *Saropogon* is also not justified because the tribe for this group is properly based on *Dasypogon*.

The group of genera in the Dasypogonini characterized by the presence of a spine at the apex of the anterior tibia may be polyphyletic, since it is evident that there are at least two subdivisions, the one having a small, slender, twisted or bent spine, without any accompanying basal protuberance, and composed of many genera of small flies; and another division of medium or large flies with a stout, straight spine, with or without a basal protuberance, and often with an accompanying swelling and denticles on the base of the corresponding basitarsus. While it seems likely that these tibial spines have arisen more than once, it is scarcely tenable to hold that they have arisen on any multitudinous basis. I regard them as a specialization and as an adaptive structure useful to the insect for raptorial purposes. It should be noted that the auxiliary denticles and plate augment the value of the spine; the denticles arise earlier than the plate of the basitarsus, and the plate itself has arisen independently as in the Megapodinae.

The tribe Stenopogonini contains some genera which bear a striking resemblance to certain other genera among those of the spined front tibia of the Dasypogonini. I refer to *Archilestris* Loew and *Diogmites* Loew; to *Cyrtopogon* Loew and *Lestomyia* Coquillett; and to *Eucyrtopogon* Curran and *Comantella* Curran.

KEY TO GENERA OF DASYPOGONINI

1. Anterior tibia always with spine, or with protuberance and spine at the apex; the spine is either fine or stout, sharp or blunt, straight or twisted and bent. Marginal cell always open. Female terminalia always with acanthophorites and spines. Male terminalia always rotate. Lateral slopes of metasternum with pile. Prosternum dissociated 2

Anterior tibia never with protuberance or spine at apex; marginal cell always open. Female terminalia always with acanthophorites and spines. Male terminalia with or without rotation. Lateral slopes of the metasternum always with pile. Prosternum characteristically dissociated . . . . Stenopogonini

2. Anterior tibia at apex with protuberance bearing doubled spine, the outer element longer and twisted. Large, densely, short pilose flies. Questopogon Dakin and Fordham

Anterior tibia always with a single spine at apex, straight or bent, slender or stout, and with or without protuberance 3

3. Third antennal segment with small, dorsal or sublateral spine, usually more or less concealed by a dorsal depression near the apex; spine sometimes free and with accompanying excision. Pulvilli always present and well developed 4

No dorsal or sublateral, subapical spine present on third antennal segment or if present, the pulvilli are wanting. Ordinary bristles present or absent 6

4. Subfacial sclerites (area beneath mystax) much shorter than the face. Antenna elongate and slender, without dorsal bristles; antennal spine often free, with well marked, dorsal incision and spine, basitarsal protuberance and basitarsal modifications absent; fourth posterior cell open. Small flies; abdomen never elongate or constricted. Taracticus Loew

Subfacial sclerites as long as the face. Third antennal segment with several, stout bristles dorsally; anterior tibia with spine and basitarsus with prominent, swollen flange. Fourth posterior cell closed and petiolate. Slender flies, exceptionally bare, scantily setate, with the abdomen lengthened and more or less narrowed basally . . . 5

5. Third antennal segment robust, rather short, with apical pit and spine and poorly differentiated, lateral spine beyond the middle; its length from 1 to 1½ times that of the combined length of the first two segments. Second abdominal segment with low, broad, distinct bullae anteriorly and posteriorly . . . . Mirolestes Curran

Third segment long and slender, with middorsal incision and spine, its length more than 2 times the combined length of the first two segments . . . . . Cyrtophrys Loew

6. Fourth posterior cell closed and stalked 7

Fourth posterior cell open and usually widely open . . 22

7. Third antennal segment without microsegment; apex with a minute spine, or spine absent 8

Third antennal segment with a distinct and well developed apical microsegment 20

8. Scutellum with stout bristles 9

Margin of scutellum without bristles 18

9. Pulvilli of hind legs and sometimes the middle pair reduced to a third the claw length . . . Caenarolia Thomson

Pulvilli of normal length 10

10. Width of face greater than a third the head width; face usually with some fine pile . . . Allopogon Schiner

Width of face less than a third the head width . . . 11

11. Third antennal segment elongate, cylindroid, with apical pit and approximately twice the combined length of first two segments. Bare, black flies of greatly reduced pile and few bristles. Form short and robust. Fourth posterior cell closed with very short stalk or very narrowly open. Apothechyla, new genus

Third antennal segment shorter, spindle-shaped, or dilated throughout the middle; apex with spine 12

12. Face usually completely apilose and mystax confined to 1 or 2 rows of stout, long bristles. Elongate flies, usually with narrow abdomen, cylindroid or slightly tapering, rarely subclavate. Pile greatly reduced, presenting a bare appearance 13

Face often densely pilose; mystax forming a cluster of ventral bristles. Shorter, more robust species, densely pilose 15

13. Middle of front with abundant, bristly pile. Ocellarium with several pairs of bristles. Sides of abdomen basally with abundant, fine pile. Large or very large flies. Neodiogmites Carrera

Middle of front usually apilose. Abdomen without dense, basal and lateral pile 14

14. Ocellarium with 5 pairs of bristles. Third antennal segment without bristles. Front without bristles. Chylophaga, new genus

Ocellarium usually with 1 pair of bristles. Third antennal segment usually with several, stout bristles. Front generally without bristles . . . . . . Diogmites Loew

15. Face entirely convex throughout and densely beset with stiff pile or weak bristles . . . . Lastaurina Curran

Face with at least the upper fourth bare; all of face usually bare, except the supraepistomal gibbosity; face gently concave 16

16. Pile or bristles of face restricted to a supraepistomal band 17

More elongate flies, the pile fine, silky and dense and extends over the lower three-fourths of the face; no bristles above epistoma . . . . Lastauropsis Carrera

17. Palpal segments continuous . . . . Lastaurax Carrera

Palpal segments discontinuous (including *Lastauroides* Carrera) . . . . Lastaurus Loew

18. Small, slender flies with broad wings and long neck region. Face reduced in height, the supraepistomal area enlarged. Third antennal segment dilate and considerably wider than the second . . . . Deromyia Philippi

Large or very large flies, robust and stout but abdomen elongate and cylindroid. Third antennal segment slender 19

19. Abdomen tapering from base of apex; third antennal segment wider at base; extremely bare, large flies of denuded appearance, apart from bristles of limited extent. Phonicocleptes Lynch Arribálzaga

Abdomen slightly clavate, or narrow basally. Third antennal segment spindle-shaped . Blepharepium Rondani

20. Anterior tibial process exceptionally long and stout; it extends far beyond the apex of the tibia. Scutellum and ocellarium with stout, long bristles 21

Anterior tibial protuberance, exclusive of spine or spur, not longer than the tibia or if so the fourth posterior cell is open 22

21. Bristles extend over most of face; longer bristles clustered above the epistoma. A row of stout bristles on hind femur. Acrostical bristles undifferentiated. Head and abdomen not drooping . . . . Dasypogon Meigen

Face without pile or bristles above the epistomal mystax. Hind femur with small bristles, or none. Acrostical bristles on mesonotum differentiated. Head and abdomen drooping . . . . Saropogon Meigen

22. Pulvilli absent 23

Pulvilli well developed 25

23. Mesonotum with stout, long, dorsocentral bristles and shorter acrostical bristles; first antennal segment with stout, long, blunt bristles 24

Mesonotum with only fine, short pile, appressed or subappressed; first antennal segment without long, stiff, ventral bristles . . . . Hodophylax James

24. Face with a dense fringe of long, adjacent, tectiform, drooping bristles, reaching nearly to base of antenna; front and ocellarium with a few, fine hairs. Legs with dense, appressed, coarse, opaque, white pile. Omninablautus Pritchard

Face with numerous, scattered, erect, stout bristles; front and ocellarium with stout bristles. Legs with fine, suberect pile or setae . . . . Parataracticus Cole

25. Face exceptionally high, the antenna arising near the vertex 26

Face of normal height and antenna not arising at or near the vertex 27

26. Lower face produced into a compressed, medial ventral beak. Abdomen pedunculate. Discal cell ends with a single vein, the upper element eliminated . . Erythropogon White

Lower face not beaklike. The first antennal segment scarcely longer than the second; the long, third, antennal segment is stout, but not wide, and without microsegment. Scutellum with bristles . . . . Tocantinia Carrera

27. Second palpal segment greatly enlarged, clavate, with large, conspicuous, terminal orifice. Third antennal segment without microsegment. Abdomen usually short, robust or obtusely clublike. Spines of female acanthophorites present but recessed and inconspicuous. Rather small flies, usually 28

Second palpal segment, if swollen and clavate, with very small orifice or none. Abdomen, if clavate, the acanthophorite spines not recessed 29

28. Mesonotum developed into a high, arched hump. Abdomen never club-shaped . . . . Caraza Walker

Mesonotum of normal height. Abdomen usually distinctly club-shaped, the terminal segments expanded and swollen. Brachyrrhopala Macquart

29. Protibial protuberance prominent, distinctly extended beyond tibial apex, the spur long, slender, pronglike, with stubby apex. Palpus elongate, very slender and attenuate with reduced pile 30

Protibial spur not pronglike and stubby. Apical tibial protuberance present or absent. Palpus differently constructed 32

30. Face rather strongly produced throughout but more prominent below and evenly and characteristically convex; its maximum length is midway from antenna to epistoma; face apilose; mystax of 1 row of short bristles. Third antennal segment more than twice as long as combined length of first two segments. Proboscis no longer than the face . . . . Neocyrtopogon Ricardo

Face moderately produced and not rounded and produced forward in the middle 31

31. Third antennal microsegment very short and cup-shaped and more or less fused to the third segment; abdomen more or less clavate, shorter than the wings. Neosaropogon Ricardo

Third antennal microsegment well developed and present; abdomen more or less tapered and attenuate, longer than the wings . . . . . . Lycotherates, new subgenus

32. The stout, basal protibial process extends independently of spur far beyond the apex of the tibia. Anterior tibia and tarsus unusually long. Whole face with loose, bristly pile. Third antennal segment with numerous, stout bristles and conical spine-tipped microsegment. Acanthophorite spines apparently absent (see Dioctrini) . . Molobratia Hull

Protibial process not exceptionally long; acanthophorite spines protruded 33

33. Third antennal segment with apical pit and spine or none. Microsegment absent 34

One or more distinct microsegments present at apex of third antennal segment 40

34. Face rather strongly concave, no part convex, mystax of 1 row of stout, long bristles; mesopleuron without pile. Aczelia Carrera

Face straight, concave on upper or lower portion, or convex 35

35. Fourth posterior cell remarkably long, with nearly parallel sides and nearly paralleling wing margin, bends to the rear distally to open narrowly on the wing margin. Base of second posterior cell arched forward and swollen and this cell elongate and drawn distalward. Dakinomyia Hardy

Fourth posterior and second posterior cells of normal pattern 36

36. Head short, quite wide. Face wide, nearly flat or plane, with 1 row of moderately stout, mystax bristles and a few, fine, slender hairs on the upper, wholly pubescent face. Proboscis short, robust. Wing with all cells open widely and posterior crossvein long. Third antennal segment with no microsegment, no style or spine. Fore tibia with a black spine curved transversely and no tarsal modification; apex of middle tibia with a short, black spine, in addition to the usual bristles. Femora stout but not swollen and without bristles. Tibial bristles prominent. Mesonotum moderately high and a little arched. Head and abdomen a little decumbent. Abdomen punctate. Archilaphria Enderlein

Not such flies 37

37. Base of second posterior cell strongly arched and wide. Face convex above, without pile; epistoma with 1 row of bristles. The dorsocentral bristles before the suture consist of fine setae. Scutellum with stout, long bristles. Male superior plate short and cleft to its base. Large flies . . . . Stizochymus, new genus

Base of second posterior cell not or but little swollen . . 38

38. Scutellum with stout, long, marginal bristles 39

Scutellum without marginal bristles. Third antennal segment gradually widened distally; apex with a dorsal cleft and sharp spine above the cleft . . Austenmyia Carrera

39. Third antennal segment slender; no long, anterior dorsocentral bristles . . . . Aczelia Carrera

Third antennal segment dilated in the middle. Well developed, long, anterior, dorsocentral bristles present. Male epandrium long, cleft, closely overlapping. Small flies. Lycomax, new subgenus

40. Upper element of the end veins of the discal cell (upper section of anterior intercalary vein) wanting; base of second posterior cell not unusually wide. Face convex, slightly concave above the epistoma; lower half with bristly pile; epistoma with 1 row of bristles . . Rachiopogon Ricardo

Upper element of anterior intercalary vein of usual extent 41

41. Face slightly or sometimes strongly concave. Apex of third antennal segment with a spoon-shaped, small microsegment; second palpal segment enlarged with terminal orifice; face pile and bristles restricted to the lower third 42

Face nearly plane or distinctly convex, rarely slightly concave. Third antennal microsegment cylindrical, attenuate or rarely obliquely truncate 43

42. Scutellum with stout bristles; abdomen with parallel sides or slightly clavate. Second palpal segment large but ordinary . . . . Austrosaropogon Hardy

Scutellum with stiff or fine marginal hairs. Abdomen strongly clavate or capitate. Second palpal segment large, clavate, with large, flattened, apical pore. Daptolestes, new subgenus

43. Face on the greater part strongly gibbous, rounded and produced, the gibbous portion densely bristly or pilose. Tibial spine subsigmoid 44

Face without prominent, bristly or pilose gibbosity, at most with short, low, inconspicuous gibbosity, the intervening area sometimes gently concave 45

44. Face gibbosity unusually prominent and extending to or very near the base of the antenna. Face everywhere beset with dense, long bristly pile. Third antennal segment elongate, slender, attenuate, with two long, slender microsegments. Mesonotum high, hump-backed, with a medial mane and the head drooping. Tibial spine slender. Second palpal segment with apical third bare. The third vein branches before the discal crossvein. Comantella Curran

Face gibbosity short, rather abruptly developed at the upper third of the head; and with stout bristles. Third antennal segment stout, often dilated distally with short, stout microsegment. Tibial spine stout at base. Apex of palpus bristly. The third vein branched opposite the discal crossvein . . . . Lestomyia Williston

45. Subepistomal area large; neck exceptionally prominent and lengthened. Third antennal segment generally swollen distally. Face nearly or quite apilose and mystax reduced to 1 to 3 pairs of bristles; if face is pilose, there is a mesonotal mane. Male terminalia with characteristic, long, troughlike, uncleft, rotate epandrium and the remaining parts short with interior structures and aedeagus exposed. Proboscis long and stout. For the most part elongate, slender flies of unusual bareness and few bristles; hind legs more or less elongate; anterior tibial protuberance and basitarsal process unusually large, conspicuous 46

Flies of different construction 48

46. A small, dense tuft of fine, erect or suberect pile situated on the hypopleuron just above the hind coxa. Tibiae and tarsi of males unornamented 47

Patch of hypopleural, dense pile absent. Hind tibiae or tarsi or both in males ornamented with a conspicuous fringe of large, flat scales on each side . Lagodias Loew

47. Mesonotum with a mane; face with abundant, fine pile . . . . Peoesimallus Loew

Mesonotum without mane; face usually bare, sometimes pilose. Bristles above epistoma long and stout, confined to 1 row of 1 to 3 or more pairs. Abdomen elongate, slightly clavate; relatively bare flies. Neolaparus Williston

48. Anterior tarsus greatly lengthened; twice as long as its tibia; middle end vein of second basal cell eliminated. Annamyia Pritchard

Anterior tibia of normal length 49

49. Apex of abdomen laterally with scaliform pile; face very short above, moderately produced and convex below. Cleptomyia Carrera

Scaliform pile everywhere absent 50

50. Spine at apex of anterior tibia attached without accompanying process or lobe, however short, and spine characteristically always fine, slender and usually twisted or bent. Small, slender, usually pollinose flies, the face very short, convex, plane with eye or slightly protuberant above the epistoma. Anterior basitarsus without process; denticles present or absent 51

Spine at apex of tibia attached with protuberance or process, short or often quite long and spine stout and robust; anterior basitarsi with denticles and usually with well developed process. Medium size to large flies, rarely small . 59

51. Only fine setae at the base of the anterior basitarsus. Ocellarium prominent with vertical sides 52

Denticles present at the base of the anterior basitarsus. Ocellarium usually weak or low 56

52. Abdomen of male expanded into a flattened shield posteriorly with dense, appressed, silvery setae; abdomen of female wide and flattened throughout . . Nicocles Jaennicke

Abdomen cylindroid or tapering, at most moderately or gently flattened, edges rolled 53

53. Face rather prominent throughout, but nearly flat or plane above and gently rounded below. Lower half of face with numerous, exceptionally stout, long bristles and postocellarium with 2 or 3 pairs of similarly stout, very long bristles. Proboscis considerably longer than the face. Paraphamartania Engel

Face scarcely or not at all extending beyond the plane of the eye, or slightly protuberant above the short, subepistomal sclerites. Width of face a fourth to a fifth of total head width. Apex of middle tibia with a conical, bristly spine or stout bristles and setae 54

54. First antennal segment ventrally with 2 or 3 exceptionally long, stout bristles. Ocellar, mystax and dorsocentral bristles exceptionally long and stouter than in allied genera. Male epandrial plate narrowly connected basally and produced laterally into a long, wide, conspicuous, flattened, winglike process. Anterior tibial spine strongly curved and clawlike. Middle end vein of second basal cell eliminated; third antennal segment attenuate. Flies of 14 mm. length; ocellarium set forward . Aspidopyga Carrera

Small flies without strong bristles. Second basal cell ends in 3 veins 55

55. Mystax with a row of weak bristles; face with fine, scattered pile of reduced amount, usually nearly absent. Cophura Osten Sacken

Mystax composed of a few, long, bristly hairs. Whole face rather densely long, fine pilose, the pile as long as the mystax; occiput, vertex, the mesonotum and the base of the abdomen densely pilose . . . . Buckellia Curran

56. Face plane, not produced beyond the eye profile, except for a very inconsiderable extent on the lowest portion and therefore scarcely visible in profile. Subfacial sclerites small, short, subhorizontal and inconspicuous. Mesonotum forming a high, arched hump equally steep posteriorly as well as anteriorly 57

Face distinctly produced beyond the eye margin, either below or over the whole face, subfacial sclerite prominent, long, oblique, well developed 58

57. Mesonotum densely long, erect pilose. Abdomen broad, short, rather robust. Surface punctures everywhere absent. Ventral surface of hind tibia with dense fringe of erect or nearly erect pile, appressed only at apex. Palpus attenuate, with a few, stiff hairs ventrolaterally. Anterior tibial spur slender, subsigmoid . Aterpogon Hardy

Mesonotum with prominent, bare areas submedially and laterally before the suture. Pile scattered, appressed, setate, a double row of short, acrostical bristles and long postdorsocentral bristles present. Sides of mesonotum and abdomen deep punctate; abdomen strongly convex laterally and also drooping and arched. Anterior tibial spur stout. Posterior tibia with similar brush of suberect, dense pile, becoming appressed at apex.
PARATERPOGON Paramonov, new genus

58. In profile only the lower face produced. From anterior aspect the face is rather strongly divergent below. Front pubescent, without pile or bristles. Mystax usually dense, oblique, tectiform; mystax confined to lower half or less than half of face. Mesopleuron with pile.
APHAMARTANIA Schiner

Whole face produced to some extent, nearly plane or very slightly, scarcely concave. Front with bristles or pile or both. Mesopleuron with or without pile 59

59. Hind femur densely setate, not clavate, usually without bristles. Male epandrium only slightly rotate, cleft at apex or divided into paired halves. Mesopleuron bare or pubescent, without pile 60

Hind femur clavate, attenuate toward base, nearly bare of pile, with bristles usually stout and spiny. Male epandrium long, not cleft or divided. Mesopleuron bare or pubescent, with or without pile . . . SAROPOGON Loew

60. Male epandrium at most cleft at apex . SAROPOGON Loew

Male epandrium completely divided, the halves widely separated . . . . ARAIOPOGON Carrera

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Genus *Dasypogon* Meigen

FIGURES 93, 468, 1049, 1058, 1749, 1796

Dasypogon Meigen, Mag. Insektenkunde, vol. 2, pp. 270, 55, 1803. Type of genus: *Asilus diadema* Fabricius, 1781. Designated by Latreille, 1810.

Cheilopogon Rondani, Dipterologiae italicae prodromus, vol. 1, p. 157, 1856. Type of genus: *Asilus diadema* Fabricius, 1781, as *Asilus punctatus* Fabricius, 1781, by original designation. Preoccupied, Pisces, 1841.

Scilopogon Rondani, Dipterologiae italicae prodromus, vol. 4, p. 7, 1861, emendation.

Chilopogon Bigot, Ann. Soc. Ent. France, ser. 5, vol. 8, p. 219, 1878, *lapsus*.

Ocilopogon Bigot, Ann. Soc. Ent. France, ser. 5, vol. 8, p. 220, 1878, *lapsus*.

Selidopogon Bezzi, Zeitschr. syst. Hymen. und Dipt., vol. 2, p. 192, 1902. Unnecessary change of name.

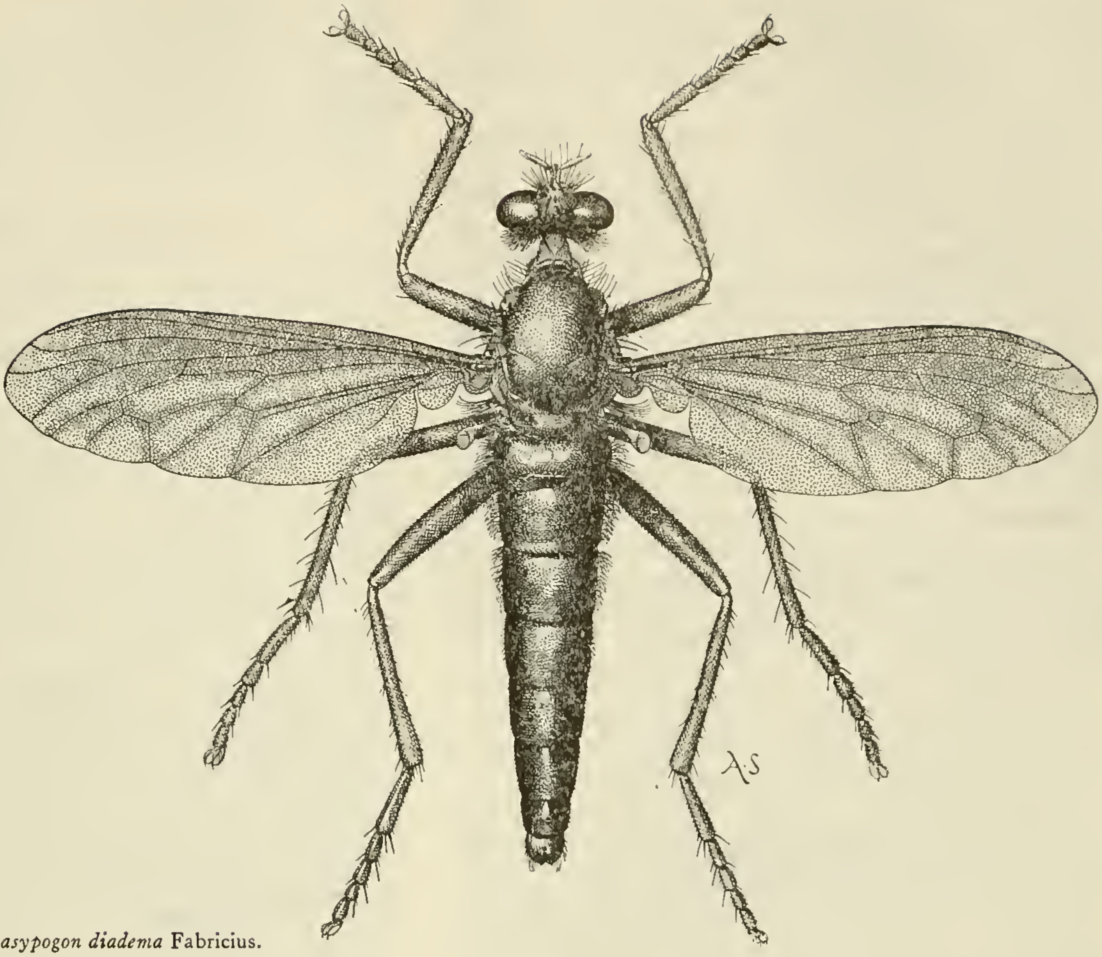
Quite large, stout flies, characterized by the robust, slightly tapered, somewhat cylindrical abdomen and the well developed bristles, the prominent face and slender antenna. The third antennal segment has at most 1 or 2 dorsal setae, and well developed microsegment and apical spine. The marginal cell is open, the fourth posterior cell and the anal cell are narrowly closed, the former may have a short stalk. Length 25 mm.

Head, lateral aspect: The head is rather long, chiefly because of the prominent face. The eye is short, moderately convex anteriorly and not quite plane posteriorly and without any anterior recession. The cheeks are well developed and prominent. Occiput thick and prominent below, especially toward the middle of the head and reduced dorsally. It has thin pollen, long, dense, coarse pile below, changing to slender bristles in the middle which become progressively stouter above and end in a deeply set, postvertical cluster of 15 on each side. Proboscis long, somewhat compressed laterally, pointed at the apex, plane below with high, thin, medial keel and a little swollen at base. The proboscis has some fine, coarse hairs laterally and ventrally on the basal half. The proboscis is directed downward. The palpus is clearly of two segments; the first segment is hemicylindrical and excavated, partly fused, the second porate, with short, conical apex and numerous bristles on all sides, except medially. The antenna is attached at the upper third of the head, elongate and comparatively slender, nearly as long as the head, or perhaps quite as long; the first two segments are a little more than half as long as the third with the second segment longer than the first, and each bears bristles above and below; the second segment has at least 1 long, stout bristle. Third segment tapered slightly at the apex and carrying a short, stout, obliquely truncate microsegment with apical spine; third segment sometimes with 1 or 2 bristles dorsally.

Head, anterior aspect: The head is short oval, the face nearly a third the width of the head, pubescent with bristly hairs down the middle and with a triangular patch of dense, long, stout bristles on the lower half of the face. Subepistomal area large, oblique, not excavated and polished. The front is slightly wider than the face, convergent again at the vertex. It is gently excavated downward and over almost the whole and laterally bears numerous bristles and bristly hairs. Vertex scarcely excavated, the ocellar protuberance large, low, with 5 pairs of divergent, long, rather stout bristles.

Thorax: The thorax is dully shining throughout, the pollen being extremely minute and scanty. Mesonotum long and rather low, somewhat more convex anteriorly, with dense, short, suberect, bristly pile, which is not differentiated. Thorax with the following complement of long, stout bristles: pronotal collar with 10 to 12 pairs, upper pronotum with 4 or 5 laterally, humerus with 5, posthumeral area with 5 or 6, notopleuron with 2, supraalar region with 4, postalar with 3, scutellum with 3 pairs, and with 4 or 5 postdorsocentral bristles. The scutellum is thick and convex, a little flattened near the base, without pile. Propleuron with coarse pile. Other pleural pile restricted to a tiny patch in the upper posterior corner of the mesopleuron. The tegula bears bristles; metapleuron with a vertical band of 12 or more long, stout bristles and some bristly hairs; metanotum without pile; postmetacoxal area membranous. Prosternum completely dissociated.

Legs: The femora and tibiae are stout, without being swollen and they are densely, appressed, coarse setate with long, stout bristles. Hind femur with 6 lateral bristles, none at the apex. Middle femur with 3 anterior bristles and 1 apical, posterodorsal bristle. Hind



TEXT-FIGURE 14.—*Dasypogon diadema* Fabricius.

tibia with 5 dorsolateral, 5 dorsomedial, 5 ventrolateral bristles; apex with 9 bristles, 2 of them short. Middle tibia with 7 anterodorsal, 5 anteroventral, 6 posterodorsal, 9 posteroventral, and 2 quite long, ventral bristles. Anterior tibia similar and bearing at the apex a characteristic, long, extended protuberance reaching well beyond the apex of the tibia, to which is attached the quite stout, long, curved spine or spur. Base of basitarsus with a moundlike swelling covered with denticles. Claws stout, sharp, curved at the apex; pulvilli large; the empodium long but rather slender.

Wings: The wings are broad, in the type of genus strongly tinged with blackish, especially along the veins. Fourth posterior cell closed in the margin or with a short stalk. First posterior cell quite widely open. Anal cell closed in the margin. Ambient vein complete.

Abdomen: The abdomen is comparatively elongate, gently tapered in the male, with nearly parallel sides in the female. The pile of the abdomen is short, stiff, appressed setate in both sexes, a little longer and more conspicuous in the male. Bristles confined to the sides of the first tergite. Male with seven tergites, the last being more than half as long as the sixth. Female with eight tergites. Male terminalia large and short, rotate one-fourth. The epandrium is notched posteriorly but not cleft, although there is a medial crease running its full length. The gonopod is convex and as long as the epandrium. The hypandrium is well developed and prominent. Females with 4 or 5 pairs of short, stout spines on the acanthophorites.

The genus *Dasypogon* Meigen, as is so often true of old genera, has had many species lumped into its confines by earlier workers without sufficiently critical observations. Many species have been removed from the genus in recent years and it is probable that comparatively few species properly belong in *Dasypogon*, *sensu stricto*. There is no alternative at present but to list within the genus all species put there, which have not been reassigned. The species known to properly belong to *Dasypogon* are found in southern Europe and northwestern Africa. According to the designation of Latreille, *Asilus diadema* Fabricius is the type of genus of *Dasypogon* and is also the type of *Selidopogon* Bezzi; hence the name *Selidopogon* must sink. *Asilus teutonus* Linné, hitherto regarded as the type of *Dasypogon* by European workers and separated from the other genus by the presence of many stout bristles on the third antennal segment, the long anterior legs, and other points, is left without a name and the new name *Molobratia* is proposed for it. Probably when a complete study of the older species is possible, the genus *Dasypogon* will be found to be confined to the Palaearctic region.

Distribution: Nearctic: *Dasypogon rubiginosus* Bigot (1878).

Neotropical: *Dasypogon annulitarsis* Rondani (1868); *aurarius* Wiedemann (1821); *cepphicus* Say (1829); *chilensis* Macquart (1849); *costalis* Lynch Arribálzaga (1880); *dorsalis* Macquart (1848); *equestris* Wiedemann (1828); *fasciatus* Macquart (1834); *flavipennis* Macquart (1846); *flavipennis* Wiedemann (1828); *fraternus* Macquart (1846); *fuscipennis* Macquart (1834); *grandis* Macquart (1846); *hirtus* Philippi (1865); *lebasii* Macquart (1838); *leptogaster* Perty (1833); *lugens* Philippi (1865); *maculipennis* Macquart (1838); *mexicanus* Macquart (1846); *mundatus* Wiedemann (1828); *parvus* Rondani (1850); *pumilus* Macquart (1838); *punctipennis* Macquart (1838); *reticulatus* Fabricius (1805); *rubiginipennis* Macquart (1838); *rufipes* Philippi (1865); *rufiventris* Wiedemann (1821); *sericeus* Philippi (1865); *tripartitus* Walker (1854).

Palaearctic: *Dasypogon arcuatus* Fabricius (1794); *atratus* Fabricius (1794); *auripilus* Seguy (1934); *brevipennis* Meigen (1838); *?caudatus* Bigot 1881); *crassus* Macquart (1849); *diadema* Fabricius (1781); [=*analis* Fabricius (1794), *bohemicus* Preyssler (1790), *liburnicus* Germar (1817), *nervosus* Meigen (1804), *punctatus* Fabricius (1781), *sicanus* A. Costa (1854), *umbrosus* Brullé (1832)], *diadema cylindricus* Fabricius (1794), *diadema melanopterus* Loew (1869); *egregius* Loew (1869); *fabricii* Wiedemann in Meigen (1820); *gougeleti* Bigot (1878); *longus* Macquart (1838); *nigriventris* Dufour (1833); *octonotatus* Loew (1869), *octonotatus rubidus* Hermann (1905); *pekinensis* Bigot (1878); *rubidus* Hermann (1905); *rubinipes* Becker in Becker and Stein (1913); *?ruficauda* Fabricius (1805); *sapporense* Matsumura (1916); *takasagense* Matsumura (1916); *?tenuis* Macquart (1838); *variabilis* Brullé (1832).

Ethiopian: *Dasypogon aequalis* Walker (1857); *atripennis* Macquart (1834); *caffer* Wiedemann (1828); *?damias* Walker (1849); *dilutus* Walker (1860); *fossius* Walker (1849); *fuscipennis* Wiedemann (1821); *laevinus* Walker (1849); *lenticeps* Thomson (1869); *luscinius* Walker (1849); *reinhardi* Wiedemann (1824); *scapularis* Macquart (1838); *torridus* Walker (1856).

Oriental: *Dasypogon albonotatus* Wiedemann (1821); *decretus* Walker (1860); *dorsalis* Wiedemann (1824); *imberbis* Doleschall (1856); *incisus* Macquart (1855); *inopinatus* Walker (1860); *inopportunus* Walker (1860); *purpuripenne* Matsumura (1916); *virens* Wiedemann (1828).

Australian: *Dasypogon albonotatus* Macquart (1847); *analis* Macquart (1849); *australis* Macquart (1838); *limbipennis* Macquart (1846); *nigrinus* Macquart (1849); *nigripennis* Macquart (1848); *occlusus* de Meijere (1906).

Country unknown: *Dasypogon annulatus* Macquart (1838); *aphidnus* Walker (1849); *claripennis* Macquart (1838); *decorus* Macquart (1838); *discolor* Walker (1854); *funebris* Macquart (1838); *inserens* Walker (1851); *nitens* Wiedemann (1828).

Genus *Allopogon* Schiner

FIGURES 175, 542, 1052, 1061, 1747, 1864, 1870

Allopogon Schiner, Verh. zool-bot. Ges. Wien, vol. 16, p. 670, 1866. Type of genus: *Dasypogon vittatus* Wiedemann, 1828, by original designation.

Medium size flies which are very similar in appearance to *Diogmites* Loew. They are separated by the moderately wider face which below the antenna is at least one-third of the head width. In general the face tends to be a little more extensive below and gently convex over the whole profile, but it is never prominent. Scutellum with bristles; pulvilli well developed. This genus is perhaps of no greater rank than a subgenus. Length 15 to 25 mm.

Head, lateral aspect: The head is comparatively long, the face is moderately produced and gibbous below. The occiput has a row of moderately strong, erect, pale bristles behind on the upper third; its lower pile is abundant. The proboscis is relatively short, directed obliquely forward, distinctly compressed laterally and bears a strong, dorsomedial ridge; just beyond the middle it tapers gradually toward a rounded, pointed apex. The apex bears a few, short hairs. Palpus with two distinct segments of equal length, the second segment more stout and set at an angle and bearing numerous, long, stiff hairs. First segment excavated. The antenna is elongate; the third segment varies from short and strongly spindle-shaped to elongate with nearly parallel sides; in either case it has dorsal setae present.

Head, anterior aspect: The face is pubescent, with a few moderately long hairs over the upper portion, the gibbosity bears a circlet of approximately 14 long, stout bristles projected obliquely forward and forming a single transverse row with also 1 or 2 additional bristles on either side immediately above. Vertex but little excavated, the ocellar protuberance low, with slanting sides and a pair of very strong, long, divergent bristles.

Thorax: The mesonotum with an acrostical row of numerous, long, sharp, stiff, backwardly curved hairs; it is bare immediately on either side of the acrostical row with the remainder of the mesonotum widely covered with abundant, long, stiff, curved pile. Humerus with 3 stout bristles. The lateral bristles are long and stout and consist of 3 notopleural, 2 supraalar, 2 postalar and 1 pair of widely separated bristles on the scutellum. The scutellum is thick but flat with rounded rim, micropubescent and not pilose. Mesopleuron and pteropleuron without bristles; metapleuron with a vertical row of 6 stout, black bristles. Pronotal collar with pile only. Middle of mesopleuron behind with a few long hairs, a tuft of pile present on the anterior extension of the pteropleuron in front of the wing. Whole pleuron micropubescent. Metanotal slopes without pile. Hypopleuron with 1 or 2 hairs and long and short micropubescence. Metasternum laterally with pile; postmetacoxal area membranous. Anterior basalare with numerous, slender bristles or bristly hairs; prosternum dissociated.

Legs: The hind femur rather slender, considerably longer than the anterior pairs; it is of more or less uniform thickness, with abundant, flat appressed, short, fine pile; below it bears a few fine, sharp, oblique, slightly longer bristly hairs. There are no dorsoapical or other bristles present except a single, rather stout bristle laterally at the basal fifth. All coxae with 1 stout, posterior bristle; anterior coxa with 7 additional and middle coxa with 2 or 3 additional bristles. Hind tibia with moderately long, oblique stout bristles consisting of 3 dorsal, of which 1 is at the extreme base, 1 at the middle, and 1 at the outer forth; 1 dorsolateral at the base, 2 lateral, of which 1 is at the middle and, 1 at the apical fifth, and 3 ventral bristles. The tibial apex bears a very stout apical, 2 weak lateral, 1 weak medial, 1 weak and 2 stout long ventral bristles. Middle femur with 1 stout, posteroapical bristle and 1 ventral basal bristle. The middle tibia has very long, extremely stout bristles which consist of 2 anteroventral elements, 1 at the middle, 1 at the apical fifth, also 5 short, stout posteroventral, 4 dorsal and 3 anterodorsal bristles; the middle anterodorsal element is extremely long; its apex bears 2 dorsal, 1 medial, 2 anterior and 1 extremely long, ventral bristle. Anterior femur with 1 short, posteroapical bristle and an equally short anterobasal bristle. Anterior tibia with 4 short dorsal, 2 ventral, besides 7 short, posteroventral bristles. The apex of the anterior tibia bears a very thick, short, curved spine which proceeds from a basal extension and is curved against a low, denticular protuberance of the basitarsus. Claws long, gently curved, convergent, the pulvilli only half as long as the claws, the empodium reaching nearly the full length of the claws and thickened basally.

Wings: The marginal cell open by a little less than its maximal width. The second submarginal cell is narrow basally and arises entirely above the third vein; the anterior branch of the third vein arises well before the apex of the wing but the posterior branch ends a considerable distance behind the apex. The fourth posterior cell is closed with a short stalk. The third posterior cell has almost exactly the same form as *Diogmites*. The alula is large, the ambient vein complete.

Abdomen: The abdomen is elongate, tapering and subcylindrical beyond the fourth tergite; the basal tergite is slightly flattened towards the middle. The first tergite laterally has an oblique, vertical row of 6 long, stout bristles. Remaining tergites with fine appressed or subappressed pile, a little longer towards the side but without special bristles laterally or special pile posteriorly. Sides of all of the tergites rather strongly curved over. Male terminalia rather large and conspicuous, and rotate. It is quite similar to *Diogmites*. The epandrium is cleft to the base, with the two halves divergent from the base, but it is a comparatively small structure with each half subtriangular, bluntly rounded at the narrow apex and a little convex dorsally. The gonopod is the most prominent element; it is bulbous and convex laterally, well demarcated and bears a toothed, posterodorsal process. Hypandrium large, broad, convex but obtuse apically. Whole terminalia rather densely beset with long, bristly hairs which arise from all parts but especially from the gonopod and hypandriun. Proctiger with a medial notch and extending short distance beyond the epandrium. Female terminalia with acanthophorites and 5 pairs of long, attenuate, sharp spines; ventral plate with a large medioapical, bowl-shaped depression, the concave side facing down and the lateral, distal part of the plate with slender bristles.

Distribution: Neotropical: *Allopogon dimidiatus* Curran (1935); *heydenii* Jaennicke (1867); *necans* Wiedemann (1828); *tessellatus* Wiedemann (1828); *vittatus* Wiedemann (1828) [=*annulitarsis* Rondani (1868), *gracilis* Bigot (1878), *longiungulatus* Macquart (1838)]; *weyenberghi* Wulp (1882).

Genus *Caenarolia* Thomson

FIGURES 146, 162, 539, 1055, 1064, 1718, 1726, 1730

Caenarolia Thomson, *in* Svenska fregatten *Eugenies* resa . . ., vol. 2, pt. 12 (Diptera), p. 470, 1869. Type of genus: *Caenarolia longipennis* Thomson 1869, by monotypy.

Caenorolia Williston, Trans. Amer. Ent. Soc., vol. 18, p. 74, 1891, *lapsus*.

Medium size to large flies which are bare, short pilose, strongly suggestive of *Diogmites* Loew in general appearance; the abdomen is rather robust basally, tapered posteriorly, the face apilose with a transverse row of 3 or 4 pairs of bristles above the epistomal margins. Related also to *Allopogon Schiner*. They are to be distinguished only on the basis of the reduced pulvilli of the middle and especially the posterior pair of legs where the pulvilli typically consist of very short stubs, and in no case are more than one-third the length of the claw. Length 15 to 22 mm. including the antenna.

Head, lateral aspect: The face is moderately prominent, becoming nearly plane with the eye margin at the antenna and gently and slightly produced below, the whole barely convex. The eye is of moderate length, strongly convex posteriorly as well as anteriorly and a little more prominent below. The occiput is moderately developed throughout its length, without pile, but with a conspicuous row of numerous, stout bristles placed some distance from the ocular margin and doubled or trebled in the lower corner of the occiput. The proboscis is long and has a high, medial ridge; from the dorsal view it is slightly swollen towards the base; the apex is bluntly rounded only on the dorsal margin and carries a few stiff hairs. The middle of the ventral margin has 2 or 3 bristly, divergent hairs on either side; the base below however is without pile, the ventral surface has a distinct medial fissure or groove. The proboscis is held obliquely forward and downward. The base behind has a conspicuous row of transverse bristles. Palpus is large, the first segment excavated, the second cylindrical but more or less swollen and microporate at apex; the dorsal and ventral surfaces each with a few stout bristles. Antenna as long or slightly longer than the head. The first two segments combined are only a little less than half the total length of antenna; second segment is one and a half times as long as the first segment. Third segment moderately dilated through the middle and narrowed near the apex; no microsegment present, the apex is truncate, with a small circular opening and short, central spine. Dorsally the third segment bears 6 to 12 long setae or short bristles.

Head, anterior aspect: The face below the antenna is a third the head width, very slightly divergent below. Subepistomal area large, nearly as long as the face, oblique, concave and bare. Face pubescent, apilose with only a few minute, short, inconspicuous hairs and with a characteristic row of quite stout, long bristles above the epistomal margin which consists of 3 or 4 pairs. The antenna is attached at the upper fourth of the head; the first segment is shorter than the second, a little longer than high, the second segment may be nearly twice as long as the first segment. The third segment is not quite twice as long as the combined length of the first two segments; it is flattened laterally on the basal portion and begins to expand near the base until in the middle it is fully twice as high as the second segment and from this point it is gradually attenuate. The apex is more or less obliquely truncate and has a distinct, apical spine. First segment with 2 or 3 minute lateral and dorsal setae; second with similar somewhat longer setae dorsally and ventrally and with a ventral subapical, short, stout bristle; third segment with about 8 middorsal setae. Anterior eye facets moderately enlarged.

Thorax: The thorax is strongly pollinose; the pile of the mesonotum including the humeral pile is very scanty and consists of short, erect, stubby setae. A single acrostical row of similarly short setae is separated by a wide, bare space; dorsocentral setae are differentiated posteriorly but of the same length except for 1 or 2 elements, which become quite stout before the scutellum. The following complement of long, stout bristles is present laterally: 1 humeral, 3 notopleural in a longitudinal row, 2 supraalar, 2 postalar, and a single pair or sometimes 2 pairs of stout scutellar bristles, the pairs set far apart. Scutellum flat with transverse grooves, pollinose and apilose. Propleuron with scanty, stiff pile ventrally; the anterior collar has 6 to 8 pairs of bristles which are rather stout, the dorsal postpropleuron with 2 or 3 fine, bristly hairs or 1 or 2 minute setae. The sternopleuron, mesopleuron, pteropleuron, and hypopleuron are apilose but densely pollinose. Metapleuron with a prominent, vertical row of 7 or 8 stout bristles and some additional, long, stiff hair behind paralleling the bristles. Metanotal slopes micropubescent only; tegula with bristles; lateral metasternal slopes pilose, ventral metasternum narrow, chitinized, apilose or at most with 1 or 2 hairs; postmetacoxal area membranous; basalare sclerites with only 1 or 2 fine hairs or bare; prosternum dissociated.

Legs: The legs are stout without being swollen and with scanty, short, appressed, setate pile. The following complement of bristles is present: the hind femur with 7 short lateral and 6 equally short ventral bristles; the apex has setae only. The hind tibia has stout but only moderately long bristles, curved and suberect, consisting of 4 dorsomedial, 5 quite short dorsolateral; also 5 ventrolateral, the basal 3 quite short, the 2 on the outer fourth long. Apex with stout, long bristles, 1 dorsal, 1 very long lateral, 6 ventral elements. This tibia has a brush of setae beginning at the outer third, no other ventral pile. The hind femur is without ventral pile. Basitarsus robust, a little longer than the next three segments; end tarsal segment nearly as long as the preceding three segments and arched on all legs. Middle femur with 2 stout bristles anteriorly. Its tibia with short, stout bristles, 6 anterodorsal, 5 posterodorsal, 6 posterior, and 2 or 3 posteroventral, the last quite long; ventrally there is a single bristle at base and no pile. Anterior femur with 4 posterior, 1 anterobasal, 6 anteroventral; anterior tibia with very short, stout bristles, 10 or 11 anterodorsal, 5 posterodorsal, 7 posterior, and 2 posteroventral. The apex has stout bristles and a very stout, curved spur carried by a basal protuberance together with corresponding denticles on the basitarsus. Anterior tarsi end in slender, thin pulvilli which extend from two-thirds to three-fourths the length of the sharp claw. Middle and posterior tarsi end in minute stubs for the pulvilli, which ordinarily do not extend beyond the swollen base of the claw. Empodia long and bladelike. The claws have a strong tendency to be apposed.

Wings: The marginal cell is open, slightly less than its maximum width; anterior branch of the third vein ends above the wing apex; posterior branch far behind. First posterior cell open in full width, fourth posterior cell closed and stalked, its end vein and the lower end vein of the discal cell make a very low, obtuse angle but are not quite in a straight line; anal cell narrowly closed; alula large; ambient vein complete.

Abdomen: The abdomen is cylindroid, slightly tapered; the abdomen is nearly as long as wings. First tergite is only slightly swollen laterally; seven tergites present in the male with slight linear trace of the eighth on the right side; eight tergites in the female, the eight is half as long as the seventh. Pile of abdomen minute, fine, setate and scanty, suberect or appressed. Sternites with short, fine pile, the first excepted. Only the first tergite with bristles; 4 or 5 pairs of stout, long bristles present. Male terminalia short, rotate one-fourth to three-eighths. Terminalia of the general form of *Diogmites* Loew and *Allopogon* Schiner. The epandrium is short, fully cleft and divergent from the base into two triangular halves with the proctiger extending a little beyond. The gonopod is the dominant element and large and swollen laterally with a pronged, distal extension from its true dorsal apical corner. Hypandrium large, broad and obtuse. Bristly hairs are moderately abundant but slender and arise chiefly from the basal part of the terminalia; the cavity is rather widely open and the aedeagus forms a simple tube. Females with acanthophorites and 5 pairs of long, rather blunt spines; ventral plate with a large apical medial, bowl-shaped depression, the concave side down, the margins distally with bristly hairs.

Distribution: Neotropical: *Caenarolia argyrocinctus* Schiner (1867); *basalis* Curran (1935); *longipennis* Thomson (1869); *miles* Wiedemann (1828); *spitzi* Carrera (1949).

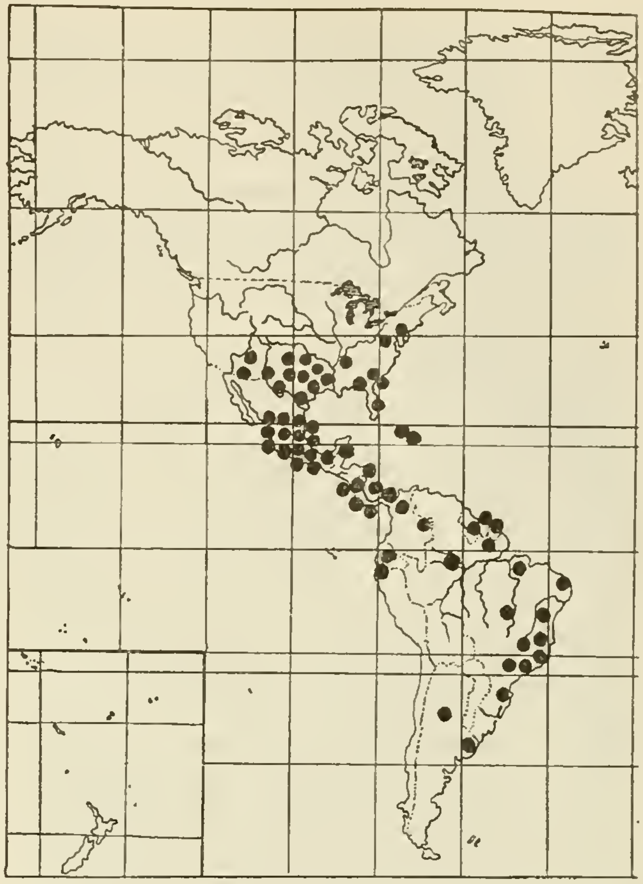
Genus *Diogmites* Loew

FIGURES 94, 466, 549, 1056, 1065, 1797, 1798, 1997

Diogmites Loew, Berliner Ent. Zeitscher., vol. 10, p. 21, 1866. Type of genus: *Diogmites platypterus* Loew, 1866. Designated by Coquillett, 1910, the first of eight species.

Large flies of drooping aspect and greatly reduced pile, which is minute and setate. Most species are pale in color with faint or indistinct bands or vittae of pollen. The face is characteristically apilose, the bristles, which are stout, are confined to a narrow band above the epistoma. Fourth posterior cell closed, the third antennal segment with dorsal bristles and the ocellarium with only 1 pair of stout bristles. Length 12 to 35 mm.

Head, lateral aspect: The head is comparatively short and wide, the face is well developed but never prominent, produced or gibbous. It is extended forward slightly more below than above and is nearly plane. The occiput is poorly developed, not extending beyond the eye except in the lower corner. The pile below is unusually scanty and bristly in character. Bristles begin near the bottom of the eye and near the middle of the occiput form a single row of rather deeply sublateral, stout elements. In addition on each side there is a postvertical cluster of even stronger elements. Proboscis is elongate, cylindrical, attenuate from near the middle of the apex. The medial ridge is prominent over the middle third, the apex pointed and the dorsal surface gently arched. The ventral surface is slightly concave. Palpus of two segments, more or less fused. The basal segment is distinctly excavated, the second sometimes with angulate attachment, clavate and porate with numerous stiff bristles. The antenna is attached a little above the upper third and is generally a little longer than the total head length. The first segment of the antenna is shortest, the second with 2 stout, ventroapical bristles. The third segment is dilated through the middle, attenuate towards base, with a number of short stout dorsal bristles and bearing a small, completely fused microsegment. Apex of third segment with large, oblique, open pit and spine.



TEXT-FIGURE 15.—Pattern of distribution of the genus *Diogmites* Loew

Head, anterior aspect: The head is unusually wide, the eye strongly flattened on each side with greatly enlarged facets; the face below antenna varies from about a fifth to a fourth the head width and may be very slightly wider below. The face is densely pollinose and usually without pile; a few fine setae may be present and above the epistoma is a conspicuous, narrow, single or double row of rather long, stout bristles which are generally pale in color. The subepistoma is large, oblique, concave. Front is short, flat, pollinose, of about the same width as the face, with a few, fine, short, bristly hairs laterally. Vertex scarcely excavated; the ocellarium is large but low with a single pair of long, stout bristles and sometimes one or two fine setae.

Thorax: The mesonotum is pollinose; the pile is restricted to a few scattered, short setae. Acrostical bristles or setae are differentiated; dorsocentral bristles differentiated only along the middle and behind, and of these there may be 2 or 3 long elements posteriorly.

The lateral complement of bristles may consist of 1 or 2 humeral, 1 or sometimes no posthumeral, 2 notopleural, 2 or 3 supraalar, 2 postalar and characteristically a single pair of long, stout scutellar bristles. Pronotal collar with a row of stout bristles, the lateral propleuron with only coarse or rarely bristly pile. Remaining pleuron apilose except the metapleuron where there is a vertical row of 2 to 7 stout bristles and sometimes supplementary pile. Sternopleuron rarely with 2 or 3 hairs. Ventral metasternum with or without scanty pile. Postmetacoxal area membranous. Prosternum dissociated.

Legs: The femora are stout without being swollen, with numerous, sharp, appressed setae and with short, stout bristles reduced in number. Hind femur with 3 or 4 lateral bristles only or sometimes merely 2 near the base. Middle femur with as few as 1 anterobasal and 1 anteroapical, or with a row of 10 small, anterior bristles, 1 to 3 posteroapical, 1 or sometimes none posteriorly at the base and often 1 or 2 bristles ventrally at the base. Anterior femur with a similar complement of bristles. All of the tibial bristles are stout and a little longer. The hind tibia has 4 anterodorsal and 4 posterodorsal, 4 ventromedial, and 6 ventrolateral bristles. Medial surface with a dense brush of setae arranged in transverse rows. Middle tibia with 5, and anterior tibia with 4 bristle rows, each containing 4 to 8 bristles. The posteroventral bristle row of both and the anterodorsal row of anterior tibia contain the greatest number. Protibia with a very short, stout protuberance and exceptionally stout, robust spine. Basitarsus slightly swollen at the base, with numerous, stout denticles. Claws stout, arched from the base with well developed, slender pulvilli and bladelike empodium.

Wings: The marginal cell is open but reduced at the apex to less than the maxium width of the cell. Fourth posterior cell is closed and stalked, the vein closing the fourth posterior cell and the lower end vein of the discal cell tend to be nearly aligned; this leaves the third posterior cell widely extended along the posterior wing margin, a condition present in several related genera but also in *Bathypogon* Loew. Alula large; ambient vein complete.

Abdomen: The abdomen is elongate, cylindroid, very slightly clavate or slightly tapering. The pile is greatly reduced to fine, scattered, appressed setae including the lateral margin. Bristles are restricted to the first tergite, where there may be from 4 to 6 stout pairs. Males with eight tergites, the eighth being extremely short. Male terminalia rotate one-fourth or more; the epandrium is small, fully cleft but apposed or overlapping and divergent only at the apex, with the proctiger extending a short distance beyond. The gonopod is well developed but short and has a characteristic, short slender, dorsal, toothlike process. The hypandrium is prominent and large and obtuse. Females with 5 pairs of stout, rounded spines upon the acanthophorites. The ventral plate has a characteristic, bowl-shaped depression with concave side down.

Diogmites is a large and characteristic genus of the Nearctic and Neotropical regions. These flies prefer rather dense, rank, low growing vegetation in damp or swampy areas. They are sometimes abundant in old fields and 1 or 2 species are serious enemies of hive bees in the vicinity of apiaries. The eggs are deposited in the earth.

Prior to Bromley (1936) most authors treated these Nearctic species under *Deromyia* Loew, which is a distinct and separate Chilean genus.

Distribution: Nearctic: *Diogmites angustipennis* Loew (1866); *basalis* Walker (1851); *coloradensis* James (1933); *contortus* Bromley (1936); *crudelis* Bromley 1936); *discolor* Loew (1866); *esuriens* Bromley (1936); *fragilis* Bromley (1936); *grossus* Bromley (1936); *hypomelas* Loew (1866); *misellus* Loew (1866); *missouriensis* Bromley (1951); *neoternata* Bromley (1931); *perplexa* Back (1909); *platypterus* Loew (1866); *pritchardi* Bromley (1936); *properans* Bromley (1936); *pulchra* Back (1909); *rufescens* Macquart (1834); *salutans* Bromley (1936); *symmachus* Loew (1872); *texanus* Bromley (1934); *umbrinus* Loew (1866).

Neotropical: *Diogmites aberrans* Wiedemann (1828) [=*examinans* Walker (1851)]; *affinis* Bellardi (1861); *alvesi* Carrera (1949); *amethistinus* Carrera (1953); *anomalus* Carrera (1947); *atriapex* Carrera (1953); *bellardi* Bromley (1929); *bicolor* Jaennicke (1867); *bifasciatus* Carrera (1949); *bigoti* Bellardi (1861); *bilineatus* Loew (1866); *bimaculata* Bromley (1929); *bromleyi* Carrera (1949); *brunnea* Fabricius (1787); *castaneus* Macquart (1838); *coffeatus* Wiedemann (1819); *craverii* Bellardi (1861); *cuantlensis* Bellardi (1861); *dubius* Bellardi (1861); *duillius* Walker (1849); *ferrugineus* Lynch Arribálzaga (1880) [=*placida* Wulp (1882)]; *goniostigma* Bellardi (1861); *imitator* Carrera (1953); *inclusus* Walker (1851) [=*parvus* Carrera (1948)]; *intactus* Wiedemann (1828); *jalapensis* Bellardi (1861); *lindigii* Schiner (1868); *lineola* Bromley (1934); *litoralis* Curran (1930); *maculatus* Curran (1934); *memnon* Osten Sacken (1887); *nigripennis* Macquart (1847); *nigritarsis* Macquart (1846); *nigripes* Bellardi (1861); *notatus* Bigot (1878); *obscurus* Carrera (1949); *pseudojalapensis* Bellardi (1862); *reticulatus* Fabricius (1805) [=*nigricauda* Curran (1926)]; *rubescens* Bellardi (1861); *rufibasis* Bigot (1878) [=*rufitarsis* Williston (1891)]; *rufipalpis* Macquart (1838); *sallei* Bellardi (1861); *superbus* Carrera (1953); *tau* Osten Sacken (1887); *ternatus* Loew (1866); *tricolor* Bellardi (1861); *virescens* Bellardi (1861); *vulgaris* Carrera (1947); *winthemi* Wiedemann (1821) [=*angustiventris* Macquart (1846)]; *wygodzinskyi* Carrera (1949).

Malloch (1915, 1917) illustrates immature stages of *Diogmites discolor* and *winthemi*.

Genus *Blepharepium* Rondani

FIGURES 543, 547, 1067, 1076, 1820

Blepharepium Rondani *in* Truqui; Studi entomologici, vol. 1, p. 89, 1848. Type of genus: *Blepharepium luridum* Rondani, 1848, by monotypy.

Planctolestes Lynch Arribálzaga, Ann. Soc. Cient. Argentina, vol. 7, p. 147, 1879. Type of genus: *Laphria coarctata* Perty, 1883, by monotypy.

Large, rather bright colored flies, very similar in almost every respect to *Diogmites* Loew from which they are distinguished by the complete lack of scutellar bristles. Like those flies they have a very bare and sparsely pilose appearance. The abdomen tends to be slightly subclavate, which together with its shorter form separates them from the even larger flies which belong to *Phonicocleptes* Lynch Arribálzaga. *Blepharepium* has somewhat fewer bristles generally than *Diogmites*. It is separated from other members of the *Diogmites* complex such as *Allopogon* Schiner, *Caenarolia* Thomson and *Neodiogmites* Carrera by the absence of scutellar bristles. Like *Caenarolia* the pulvilli of the posterior and middle legs are greatly reduced, further distinguishing it from *Diogmites*. It is a smaller genus, entirely Neotropical and several species are excellent wasp mimics. Length 30 to 35 mm.

Head, lateral aspect: The head is similar to *Diogmites*. The palpal segments are largely fused, the third antennal segment somewhat longer and less spindlelike. Ventrally at the midpoint of the proboscis there is the same pair of characteristic, long, slender, obliquely directed bristles as in *Diogmites*.

Thorax: The humerus has a single bristle; posthumeral bristles often lacking. Lateral bristles consist of 2 to 4 notopleural, 2 supraalar, 2 postalar and no scutellar bristles. Prosternum dissociated; postmetacoxal area membranous.

Legs: The legs are rather similar to *Diogmites* but with fewer bristles. Protibial spine strong. Basitarsus with a swollen, peaked, elevation and denticles. Pulvilli of the hind tarsi a little less than half as long as the claws. On the middle tarsi slightly more than half as long.

Wings: The venation of the wings is similar to *Diogmites*.

Abdomen: The abdomen is similar to *Diogmites* but is subclavate, least wide at the end of the second tergite. Males and female terminalia also similar.

Distribution: Neotropical: *Blepharepium annulatum* Bigot (1856); *asiloides* Bigot (1878); *bassleri* Curran (1942); *cajennensis* Fabricius (1787) [=*auricincta* Schiner (1867)]; *coarctatum* Perty (1833); *fenestrata* Macquart (1838); *fulvus* Bigot (1878); *inca* Curran (1942); *luridum* Rondani (1848); *lynchi* Carrera (1949); *maculipennis* Macquart (1855); *modesta* Bigot (1878); *nigriventris* Bigot (1878); *secabilis* Walker (1860); *subcontractum* Walker (1856); *vorax* Curran (1942).

Oriental: *Blepharepium testaceus* Bigot (1878).

Of the species included in the above list, almost certainly *Blepharepium testaceus* belongs properly in some other genus.

Genus *Phonicocleptes* Lynch Arribálzaga

FIGURES 65, 574, 1057, 1066, 1794, 1799

Phonicocleptes Lynch Arribálzaga, Ann. Soc. Cient. Argentina, vol. 11, p. 18, 1881. Type of genus: *Phonicocleptes busiris* Lynch Arribálzaga, 1881, by monotypy.

Very large flies with long, cylindroid abdomen. The pile is greatly reduced and absent on many areas of the fly and wherever present it is extremely short. Related to *Blepharepium* Rondani, these are larger flies with a longer, not clavate abdomen which tapers gently from base to tip, and the third antennal segment is a little wider at the base, tapering towards the apex. Scutellum without bristles; mystax restricted to the epistomal margin. Length 30 to 40 mm.

Head, lateral aspect: The face is unusually long, both above and below, slightly convex and a little shorter beneath the antenna; it is rendered more prominent ventrally because of a moderate recession of the eye. The eye is shorter than usual, equally developed above and below and moderately convex both anteriorly and posteriorly. The occiput is comparatively short but somewhat more prominent medially. Pile of occiput dense and stiff, moderately long and bristly across the posteromedial, ventral portion of the head, from which the proboscis arises; this portion is dense, prominent and extends as a conspicuous, transverse, arched band well behind the general margin of the occiput; the remaining pile of the occiput is entirely replaced by bristles which are short and stout, especially dorsally and on either side; behind the vertex there is a patch of 7 stout, sharp, slightly curved bristles. The proboscis is long, slightly compressed laterally on the distal portion with a high, conspicuous, dorsomedial ridge, which begins at the basal fourth and rises rather rapidly to its highest elevation. In dorsal aspect the proboscis is slightly but gradually tapered from the apex to the base; apex with abundant, fine, dorsal and ventral pile, the ventral pile extends over the outer fourth, the basal fourth with a transverse row of 4 to 8 fine, long hairs; the middle of the ventral surface has an additional, more prominent tuft of long hairs. Palpus large, rather long, clearly of two segments; the first segment longer than the second, excavated and troughlike; the second clavate with small apical lateral pore and numerous ventroapical and 1 or 2 apical bristles, besides some short dorsal and lateral pile.

The antenna is attached at the upper fifth of the head, quite elongate, most of the length occurring on the third segment; first and second segments of equal length. The third segment is more than twice as long as the combined length of the first two, is widest near the base and tapers gently towards the apex but chiefly on the ventral portion, leaving the dorsal margin nearly plane; the apex is obliquely, dorsally truncate with a large circular pit containing almost a completely concealed short spine. While there are indications of a microsegment, there seems to be a complete fusion of any such microsegment except for incomplete, dorsal, circular, liplike fissure. First segment with 5 or 6 short, bristly setae, appressed dorsally and ventrally, second segment with a somewhat greater number of longer setae above and below, 2 of the ventral elements being especially stout but not quite as long as the segment to which they are attached. Third segment dorsally at the base with 6 especially stout, rather long bristles.

Head, anterior aspect: The face below the antenna is slightly more than one-third of the width of the head and is divergent below. Subepistomal area is large and extensive, shallowly convex and only slightly oblique. Face densely pollinose and apilose, with a prominent row of stout, close-set, supraepistomal bristles of 6 or 7 pairs. Front short, pollinose, very slightly wider than the upper face with 9 or 10 extremely short, erect, microsetae on the upper front; eye margins extending on to the vertex. Vertex but little excavated, the ocellarium large, but low, bearing 1 pair of short, stout bristles. Anterior eye facets scarcely enlarged.

Thorax: The thorax is pollinose, the mesonotal length is 3 times the height, gently sloping on the posterior half, abruptly sloping anteriorly. Pile of mesonotum very scanty, consisting of short microsetae; there is an acrostical row of minute setae followed by a wide, bare space; the dorsocentral microsetae are not or are poorly differentiated anteriorly but behind the humerus they become the only pile laterally, except near the lateral margins where from humeri to suture there are 25 short setae. Humerus with 7 or 8 microsetae. The following complement of medium length, stout bristles is present in the type of genus: 2 humeral, 3 or 4 notopleural in an oblique row, 3 or 4 supraalar, 2 postalar, and no scutellar bristles. The scutellum is rather short, quite flat except for the thickened rim, which is convex. The basal crease is distinct, a little deeper laterally; scutellum apilose with some scant, dark pollen. Propleuron ventrally and dorsally with numerous, fine, rather stiff hairs; the dorsal collar with 7 or 8 pairs of slender bristles; middle posterior part with a single, stout bristle. Pleuron pollinose but almost apilose; mesopleuron without pile; sternopleuron with 5 appressed microsetae posterodorsally; metapleuron with at least 6 long, stout bristles. Metanotal slopes pollinose only; tegulae with setae; lateral metasternum posteriorly with a number of stiff, bristly hairs; ventral metasternum chitinized, apilose; postmetacoxal area membranous.

Legs: All the femora are slender, the hind femur and its tibia distinctly elongate. The anterior and middle femora approximately the same length; all the femora with abundant, quite short, appressed microsetae. In the type of genus the hind femur has 5 or 6 short, lateral bristles, the last one near the middle and with 4 ventral bristles distributed over the middle third; the apex on the dorsal half without any bristle. Hind tibia with short, stout bristles, 4 dorsomedial, 5 dorsolateral, 3 weak, short ventromedial basally, 7 longer ventral bristles, the last 2 or 3 of greater length and with a third bristle ventrally between the others; apex with a dorsolateral, a lateral, a medial and 6 ventral bristles. A setae brush is present medially on the outer half but ventrally only at the apex. Middle femur with a stout posterodorsal, apical bristle and 3 or 4 short, anteroventral bristles; these tibia have 8 anteroventral, 5 anterodorsal, 2 on the outer half much longer and stouter, besides 4 short, posterodorsal and 7 or 8 short, posteroventral, and 2 long, stout, distal ventral bristles. Anterior femur with 3 short anteroventral bristles, its tibia with 4 short anterodorsal, near the apex anteriorly with 2 long, stout bristles; also 5 short, posterodorsal, 8 short posteroventral and on the outer fourth a single, long, stout ventral bristle. Ventromedially is a protuberance bearing a stout laterally curved spine. All basitarsi are rather long, as long as the next three segments; the anterior basitarsus with a denticulate wheellike, basal flange. All tarsi end in stout sharp claws, arched from the base, a long bladelike unswollen empodium, and reduced pulvilli half as long as the claws.

Wings: The marginal cell is open by only its maximum width. Submarginal cell open for a like distance. Anterior branch of third vein gently sinuous or sigmoid, ending distinctly before the apex of the wing and slightly arched anterobasally taking origin opposite the end of the discal cell; the posterior branch ends far behind the apex. First posterior cell is widely open but slightly narrowed; fourth posterior cell closed with a long stalk, gently convex anteriorly and posteriorly, its end vein and the lower end vein of the discal cell, though neither are quite straight, are almost completely aligned; middle end vein of the second basal cell is short; anterior crossvein enters the discal cell in the middle. Anal cell closed in the margin; alula large; ambient vein complete.

Abdomen: The abdomen is a little longer than the wing, cylindrical, the first tergite wider than the mesonotum, but not wider than the thorax, the remainder of the abdomen gently tapered from the base of the second tergite. Male with eight tergites, the eighth one-sixth as long as the seventh; female with eight tergites, the eighth one-half as long as the seventh. Pile of abdomen quite scanty, extremely short microsetate, but more abundant on the terminal segments, though equally short. First tergite with some slightly longer bristly pile and 4 to 7 pairs of short, stout bristles. First sternite apilose, remaining sternites with scanty microscopically short hairs. Male terminalia rather short, rotate one-fourth, the epandrium cleft to the base and divergent on the distal half. Hypandrium only half as long as epandrium and gonopod well developed. Female terminalia with 5 pairs of slender, blunt, attenuate spines with dorsal grooves.

Distribution: Neotropical: *Phonicocleptes busiris* Lynch Arribálzaga (1881); *langei* Carrera (1947).

Country unknown: *Phonicocleptes spectans* Walker (1851).

Genus *Neodiogmites* Carrera

Figures 156B, 541, 1068, 1077

Neodiogmites Carrera, Arq. Zool. São Paulo, vol. 7, p. 85, 1949. Type of genus: *Dasypogon melanogaster* Wiedemann, 1821, by original designation.

Very large flies with rather robust yet elongate abdomen and reduced pile. These flies are similar to *Diogmites* Loew in most respects. The face tends to be of less height, the ocellarium has 3 pairs of long, stout, ocellar bristles and 4 or 5 pairs of shorter postocellar bristles. There are numerous bristles on either side of the front and there are tufts of appressed, matted, rather long pile widely over the posterolateral corners of the second, third and fourth tergites. First 4 sternites also with long, coarse, bristly pile. Length 35 to 40 mm.

Head, lateral aspect: The face is moderately well developed and of uniform length, of reduced height. The occiput is poorly developed, a little more prominent medially with deep ventral pockets on either side. The bristles are quite stout and continue in 2 rows throughout the entire occiput with additional postvertical clusters. Proboscis similar to *Diogmites* and also with a pair of divergent bristles ventrally at the middle. Palpus large, of two segments, the second attached at an angle and the first segment excavated; the apical pore is small, the bristles of the second segment unusually stout. The antenna has 2 quite stout and several shorter, more slender bristles ventrally upon the second segment. First segment with a few weak bristles and both segments with numerous, slender bristles dorsally.

Head, anterior aspect: The head is unusually wide, the eyes greatly flattened in front. The face is a little less than a fourth the head width and slightly wider below. The face is without pile and bears a single row of very stout, long bristles above the epistoma which contains 5 pairs and sometimes 1 or 2 additional bristles. Subepistomal area unusually large, oblique and concave. Front on each side with a tuft of numerous, long, slender bristles and an additional row along the eye margin. Vertex moderately excavated; the ocellarium is large and bears numerous bristles.

Thorax: The thorax is without pile except for fine, loosely scattered setae situated for the most part anteriorly and laterally. There is an acrostical row of bristles and dorsocentral elements are differentiated opposite the notopleuron, each row containing 14 bristles. The lateral complement of bristles consists of 4 anterohumeral, 1 posthumeral, 3 notopleural, 4 supra-alar, 3 postalar, and 1 pair of scutellar. Mesopleuron posteriorly and the sternopleuron with some bristly hairs. Metapleuron with a double row of long, stout, apically bent bristles and above a number of bristly hairs. Metanotal callosity micropubescent only. Metasternum with bristly pile. Postmetacoxal area membranous. Prosternum dissociated.

Legs: The legs are similar to the legs of *Diogmites*. The protibial spine is stout and more or less sigmoid and pointed, arising from a somewhat longer process than in *Diogmites;* its basitarsus is plane and bears only denticles. Claws very stout, rather sharp, the pulvilli and flattened empodium fully developed.

Wings: The wings are similar to *Diogmites* but the apex of the marginal cell is distinctly more narrow.

Abdomen: The abdomen differs from *Diogmites* only in the long, matted pile on the sides of the second to fourth tergites. First tergite with 7 pairs of long, stout bristles. Females with acanthophorites and 4 pairs of long, sharp, stout spines and 1 pair of much smaller, slender, dorsal spines. Ventral plate without bowl-shaped depression.

Distribution: Neotropical: *Neodiogmites melanogaster* Wiedemann (1821); *tenebrosus* Carrera (1949).

Genus *Comantella* Curran

Figures 81, 469, 1085, 1094, 1745, 1837

Comantella Curran, Canadian Ent., vol. 55, p. 93, 1923. Type of genus: *Cophura fallei* Back, 1909, as *Cyrtopogon maculosus* Coquillet, misidentified. See Melander, 1923.

These are hump-backed flies of medium size and compressed mesonotum, distinguished by the combination of a mesonotal mane and a distinct, slender, sigmoid spine at the apex of the protibia. The mesonotal mane is occasionally met with in some species of *Cyrtopogon* Loew and allied genera. Species of *Comantella* are pilose flies, the face gibbous and densely bristly; the antenna is attenuate and slender and the wings often spotted. It should be noted that, as in several genera that are possibly allied, the mesotibial spines at the apex tend to curve backward. Length 10 to 15 mm.

Head, lateral aspect: The head is long, accentuated by the prominently produced and strongly gibbous face and the well developed occiput. The face is rounded and convex except for a short space beneath the antenna. The occiput is tumid and prominent and sublaterally slopes rather rapidly down to the eye margin. It is more prominent below because of the strong posteroventral recession of the eye, beginning at the middle of the head. Occipital pile abundant, long and rather coarse, and accompanied by bristles which begin near the middle of the head and on the middle of each half of the occiput; there are 12 to 15 pairs on each side. The proboscis is rather short and stout, plane below, with the apex obliquely truncate dorsally and a prominent medial carina. Palpus clearly of two segments, the first hemicylindrical and excavated, the second attenuate with bare apex, porate and with bristly hairs over the middle and base. The antenna is attached a little above the middle of the head and is not quite as long as the maximal length of the head, face included. First and second segments short, the first more robust, a little longer and both with long, coarse pile above and numerous longer bristles below. The third segment is widest at the base, slender, attenuate, more tapered at the apex, with two prominent microsegments nearly as thick as the end of the third segment proper; the first microsegment is short, the second is several times as long and tipped with a spine.

Head, anterior aspect: The width of the head is moderate, wider than the mesonotum; face quite wide, divergent below to a little more than one-third the head width. The whole face is pubescent and, except near the eye, densely beset with long, slender bristles. Subepistomal area large, its sides partly bristly. The supraepistomal bristles are not strong. Front flat with fine pile laterally, slightly divergent. Vertex but little excavated, the ocellarium large, with 5 to 7 long, slender, bristly hairs on each side between the ocelli and with 3 stouter bristles between the posterior ocelli and 3 or 4 more behind the ocelli. Anterior eye facets strongly enlarged.

Thorax: The mesonotum on the anterior part is laterally compressed submedially It is pollinose with abundant, long, fine pile; it has a dense, medial mane of long, bristly hair beginning at a level corresponding to the anterior margin of the humerus and continued to the scutellum and containing the dorsocentral bristles. The lateral complement of bristles consists of only bristly hair on the humerus, the notopleuron with 3 or 4 stout bristles, supraalar with 5 or more slender bristles, and postalar with 7 slender bristles. Scutellar margin with 8 or 10 pairs of long, moderately stout bristles and the disc covered with dense, long, crinkly pile. Bristles absent on the pleuron, except perhaps on the metapleuron where there is a wide, vertical band of numerous, long, slender, attenuate, bristly hairs. Propleuron densely long pilose. The posterior mesopleuron and the upper sternopleuron with less abundant hair. Lateral and ventral metasternum densely pilose, the postmetacoxal area membranous.

Legs: The femora are comparatively short and stout, but little swollen. All are densely long, bristly pilose. Their dorsal surfaces have appressed, shorter pile as well; bristles absent. All the tibiae with fringes of very long, fine attenuate hairs ventrally and posteriorly, shorter subappressed pile dorsally, and also with abundant bristles. Hind tibia with 5 or 6 long dorsal bristles, 3 similar bristles laterally, and 2 ventrolateral bristles distally; the apex has 7 bristles. Middle tibia also with long dorsal, posterior and posteroventral bristles, with about 5 elements in each row. Anterior tibia similar but the dorsal bristles short, oblique, and 7 in a row. Anterior tibial apex with distinct, sigmoid spine. Claws sharp, strongly curved from the middle, pulvilli and empodium well developed.

Wings: The marginal cell is widely open, second submarginal cell long and narrow, all posterior cells widely open, anal cell narrowly open. The fork of the third vein is located before the posterior crossvein and the anterior crossvein enters the discal cell a little before the outer fourth, which is in contrast to *Eucyrtopogon* Curran where the fork of the third vein is opposite the posterior crossvein and the anterior crossvein is nearer the middle of the discal cell. Alula is short, gently curved; ambient vein complete. The furcation of the third vein and the crossveins usually with small, blackish spots.

Abdomen: The abdomen is dense, long pilose on the lateral portion of each tergite, the pile shorter, fine and slightly appressed medially and growing a little shorter terminally. Males with 7 tergites and a minute, liplike trace of the eighth. Females with 8 tergites, the eighth quite short and from a third to a fourth as long as the seventh. Male terminalia rather small and comparatively short; the epandrium is notched medially and indented but not cleft; it forms a rounded, flat lobe on each side. Gonopod cylindroid, bluntly pointed, as long as the epandrium. Hypandrium short, obtuse, sloping upward. Cavity of the terminalia exposed from below. Female terminalia with 4 or 5 short, stout spines on each acanthophorite.

Distribution: Nearctic: *Comantella cristatus* Coquillett (1893); *fallei* Back (1909); *pacifica* Curran (1926); *rotgeri* James (1937).

For an understanding of the problems involved in the type fixation of this genus the student is referred to Melander (1923) and Curran (1926a).

Genus *Lestomyia* Williston

FIGURES 165, 525, 1103, 1112, 1842, 1867

Lestomyia Williston, Trans. American Ent. Soc., vol. 11, p. 19, 1884. Type of genus: *Clavator sabulonum* Osten Sacken, 1877, by original designation.

Clavator Osten Sacken, not Philippi, Bull. U.S. Geol. Survey, vol. 3, p. 391, 1877.

Small or medium size flies characterized by the strongly gibbous and convex face, and the bent spine at the apex of the protibia. The third antennal segment is rather strongly dilated distally; its microsegment ends bluntly and is truncate with an apical pit. These flies resemble *Lasiopogon* Loew, from which they are distinguished by the tibial spine, presence of lateral metasternal pile and not divergent vertex. Length 9 to 14 mm.

Head, lateral aspect: The head, including the face, is long; the face on the ventral two-thirds or three-fourths is gibbous, convex and sometimes strongly produced, leaving the upper portion beneath the antenna short. Occiput very prominent below, due to the marked posteroventral recession of the eye, which begins near the upper third of the head. The occipital pile is long, abundant and coarse ventrally, with a few slender bristles on the upper third of the head, and with a close-set tuft of 5 stout bristles on each side behind the vertex. Proboscis extended well beyond the face, large, cylindroid, with blunt apex and unusually prominent dorsal carina over the middle portion. The middle ventral portion has a number of long, coarse hairs. Palpus large, elongate, clearly of two segments; the first segment is excavated, the second tapered, microporate, with bristly hairs on all sides and the apex and also below the first segment. The antenna is attached a little above the middle of the head, the first and second segments rather short, the first one especially robust, both with numerous long, slender bristles below, laterally, and with bristly pile above. The second segment ventrally has 2 or 3 stout bristles. The third segment is narrow at the base, strongly widened or dilated at the outer third and from this point rather abruptly narrowed to the apex. This segment bears 1 short, stout, rather small, apically truncate microsegment, at its end an open pit with spines.

Head, anterior aspect: The head is wide, the face unusually wide and nearly one-third the head width, slightly divergent below. Face densely pubescent, except on the sides opposite the subepistomal area. Pile absent, but the greater medial part of the gibbous portion is densely beset with long, stout, pale bristles. Subepistomal area large, concave and oblique. The front is a little wider than the upper face, slightly convergent at the vertex, pollinose with along the eye a submarginal row of pile which changes to bristles at the vertex and an additional segregated patch of pile and weak bristles in the middle of each half of the front. Vertex but little excavated, the ocellarium large, with slanting sides and bearing 2 pairs of stout bristles between the ocelli and 3 pairs behind. Eye facets only slightly enlarged.

Thorax: The thorax is pollinose with reduced pile. There is an acrostical row or double row of bristles and scattered, scanty, coarse hair laterally. The dorsocentral bristles are characteristic and consist of very strong bristles anteriorly as well as posteriorly; there may be 10 or more in each row. Lateral bristles quite prominent and stout and long, and with the following complement: 3 or 4 humeral, 2 or 3 notopleural, 2 supraalar, 2 postalar and 3 to 5 pairs on the scutellum. Scutellum rather thin, flat and pollinose; pubescent only. Pleuron pollinose, a vertical row of weak bristles and bristly pile on the metapleuron, weak bristles or only bristly pile on the pronotum, both anteriorly and laterally. Lateral propleuron with dense tufts of long pile, including the cervical sclerite. Metanotum micropubescent only. Prosternum dissociated; lateral and ventral metasternum pilose; postmetacoxal area membranous.

Legs: The femora are stout without being swollen, with fine, flat appressed, somewhat bristly pile and on the ventral surface of the first four, usually a few fine, moderately long hairs, still fewer on the hind pair. Femoral bristles quite few. Hind femur with 2 or 3 laterally on the basal third, none at the apex. Middle and anterior femora each with 1 bristle posteriorly near the outer fourth. All tibia with fine, short, appressed, scanty pile and rather numerous, short but quite stout bristles. Hind tibia with 6 dorsolateral, 4 dorsomedial, 4 ventrolateral and 2 ventromedial bristles on the outer half. The apex has 8 bristles. Middle tibia with 6 anterodorsal, 4 posterodorsal, 6 posterior, 3 posteroventral, the latter longer. Anterior tibia with 8 anterodorsal, 4 posterodorsal, 3 posterior, and 2 long posteroventral bristles. Apex with a quite short process and distinct sharp, twisted spine. Basitarsus with a cluster of denticles. Claws slender, sharp; the pulvilli well developed, slender; the empodium flattened.

Wings: The wings are immaculate, the marginal cell widely open; fork of the third vein at or beyond the posterior crossvein. Anterior crossvein enters the discal cell a little beyond the middle. All posterior cells open, the fourth a little narrowed. Anal cell widely open, or narrowly closed. Alula large; ambient vein complete.

Abdomen: The abdomen is comparatively robust, distinctly tapered and at base a little wider than the mesonotum, or equally wide. The abdomen is pollinose with scanty reduced pile, more or less appressed, short in character, a little longer on the sides of the first three tergites. Tergite one laterally with 3 to 6 stout bristles. Males with seven tergites, the seventh only half as long as the sixth. Females with eight tergites, the last being prominent. Male terminalia rotate one-fourth. Epandrium cleft to the base but each half tightly apposed for at least half of its length. The gonopod is comparatively large, as long as the epandrium, and tending to meet below to partly enclose the terminal cavity. Hypandrium large, subtriangular and broad at the base. Females with 5 or 6 pairs of prominent, stout, blunt spines on the acanthophorites.

Distribution: Nearctic: *Lestomyia atripes* Wilcox (1937); *fraudiger* Williston (1884); *montis* Cole (1916); *redlandiae* Cole (1916); *sabulonum* Osten Sacken (1877); *strigipes* Curran (1931); *unicolor* Curran (1942).

Genus *Lastaurus* Loew

Figures 159, 548, 1069, 1078, 1950, 2008

Lastaurus Loew, Bemerkungen über die Familie Asiliden, p. 11, 1851. Type of genus: *Lastaurus anthracinus* Loew, 1851, by original designation.

Morimna Walker, Insecta saundersiana, vol. 1, pt. 2, p. 104, 1851. Type of genus: *Morimna mallophoroides* Walker, 1851, by monotypy.

These are large, robust flies with comparatively dense, long pile: often black or dark in color with smoky wings but not all species have this coloration. Some species resemble *Mallophora* Macquart or *Laphria* Meigen at first sight. *Lastaurus* is related to *Diogmites* Loew but is much more robust, with short but dense pile on the abdomen and lateral margins of the mesonotum. The femora are stout but not at all thickened; the tibiae and tarsi are, however, distinctly and more than usually robust. The third antennal segment is never spindlelike or dilated as in *Diogmites*. The face is nearly plane but more conspicuous below due to the normal anterior recession of the eye: it is pollinose only but has two or three transverse rows of long, stout, conspicuous bristles across the epistoma. Length 12 to 33 mm.

Head, lateral aspect: The head is short, the face also short but is a little more protuberant ventrally above the epistoma; the subepistoma is large and oblique, slightly concave. The occiput is narrow but more prominent and thick medially, with on the upper three-fifths a row of very stout bristles and additional long, stiff pile and below on the lower part a dense bushy tuft of rather long pile. The proboscis is large, curving downward, cylindroid, with thick base but with a prominent, thin dorsal ridge; the apex is pointed with a rounded tip and abundant pile, the basal half below bears numerous, long hairs. The palpus is large and has two segments; the first segment is excavated, the second segment is cylindrical; apex and all surfaces except medial with numerous long, stiff bristles and hairs. The antenna is attached at or above the upper third of the head. It is slender and elongate, a little longer than the head. The first two segments are slightly elongate, with the second longer than the first; both bear a number of stout, long setae ventrally and also dorsally but the second segment has a conspicuous long, stout, ventral, subapical bristle. Third segment of uniform width or very slightly and gradually attenuate and is from 1½ to 2 times as long as the combined length of the first two segments. The third segment, at the end, has a short, stout, wide microsegment, with oblique, truncate apex carrying a short, concealed spine. Dorsal margin of the third segment with 6 to 10 long, conspicuous setae or short bristles.

Head, anterior aspect: The head is quite wide, the eyes flattened with the anterior facets enlarged. The face is wide, slightly diverging below. The face is pubescent, with a supraepistomal mystax of very stout, long bristles. Front and vertex of nearly the same width as the face below the antenna. Front with numerous, fine, long hairs on the eye margins. Vertex with 5 pairs of long, stout bristles and a few, slender hairs. Vertex shallowly excavated, ocelli set on a low tubercle.

Thorax: The mesonotum is gently convex with fine, erect, scattered pile, including the humerus. The humerus also bears 7 very stout, spinous bristles. Laterally the stout bristles consist of 4 notopleural, 2 supraalar, 3 postalar, and the scutellar margin with 3 pairs of bristles and marginal pile. Scutellar disc flat, without pile and with convex margin. The lateral propleuron is pilose, the pronotum with long, weak bristles and pile. Upper sternopleuron and whole posterior border of mesopleuron with dense, long pile. Pteropleuron and hypopleuron without pile. Metapleuron convex, bare behind, but with a long, wide band of numerous, long, slender bristles and stiff hairs. Lateral and ventral metasternum with long, stiff pile. Metanotal callosity exceptionally bullose and micropubescent or pollinose only. Pleuron generally pollinose. Postmetacoxal area membranous. Basalare without pile or bristles; tegula with setae; prosternum dissociated.

Legs: The femora are quite stout without being greatly thickened and rather short; the hind tibia is somewhat thicker than the corresponding femur. Hind tarsus also thickened and stout. The pile of the hind femur is densely appressed, fine setate; it bears only a row of 7 or 8 very stout, lateral, tuberculate bristles, which do not extend to base or apex. Hind tibia with equally stout, long bristles, 1 dorsocentral, 1 dorsal subapical, 5 dorsolateral, 3 ventrolateral on the distal half, with the usual medial brush of setae; its apex bears 4 ventral and 6 medial bristles. Middle femur with 2 subapical posterior and 4 central anterior bristles. Middle tibia with 3 short dorsal, 7 long anterior, 4 short basal anterior, 10 posterior, and also 4 exceptionally long, posteroventral bristles. Apex with 13 bristles. Anterior femur with 3 posterior subapical bristles. Anterior tibia with 15 to 22 dorsal bristles in a double row. The apex of this tibia bears 8 bristles and a long, basally thickened, apically pointed, narrow, curved, somewhat twisted clawlike spine. Basitarsus with fine microdenticles. All tarsi end in stiff, unswollen empodium, well developed pulvilli and divergent, sharp claws.

Wings: The wings are often tinged with brown. Marginal cell open but by a little less than its maximal width. Second submarginal cell narrowed basally, arising wholly above the third vein and strongly flared apically so that both branches of the third vein end well away from the apex of the wing, the posterior branch farthest from the apex. Posterior cells widely open except the fourth which is closed with a short stalk. Anal cell closed in the margin. Alula large, ambient vein complete. The anterior branch of the fourth vein originates rather far back on the second basal cell and the middle end vein of the second basal cell is quite short.

Abdomen: The abdomen is robust to the end of the fourth segment and as wide as thorax. These first segments have more matted pile and sometimes pile of a different color. Sides of first tergite with a dense tuft of copious, bristly and bushy pile and no bristles. Fifth and remaining segments tapered and narrowed. The pile varies from short to long. The female terminalia bears 5 pairs of remarkably stout, long, spoon-shaped, almost truncate, dorsal spines. Ventral plate with a medially notched, rather large, subconical projecting end piece and numerous short, fine, bristly hairs. Male terminalia comparatively small considering the size of the species. The epandrium is unusually small and short but fully cleft, each half rounded at apex; the proctiger, perhaps in consequence, is unusually long and large and projects beyond. The gonopod is the dominant element and is high, extensive, convex basolaterally, and bears on each side two distal processes which are stout, elongate, with blunt apex. Hypandrium large, but comparatively short and obtuse, leaving the cavity open and exposed; internally there appear to be one or two pairs of more slender processes. The terminalia are rather densely beset with long, bristly hairs or very slender bristles.

Distribution: Neotropical: *Lastaurus anthracinus* Loew (1851); *bombimorpha* Rondani (1850); *fallax* Macquart (1846); *fenestratus* Bigot (1878); *lugubris* Macquart (1846); *mallophoroides* Walker (1851); *mutabilis* Loew (1851); *transiens* Walker (1849); *robustus* Carrera (1949).

Oriental: *Lastaurus flavipellitus* Enderlein (1914). *Lastaurus flavipellitus* probably does not belong here.

Genus *Lastaurina* Curran

FIGURES 544, 1070, 1079

Lastaurina Curran, American Mus. Novitates, no. 806, p. 5, 1935. Type of genus: *Dasypogon ardens* Wiedemann, 1828, by original designation.

Large flies with dense, shaggy pile; distinguished from *Lastaurus* Loew by the face being gently convex and covered throughout its full length with long, slender bristles or bristly pile. Moreover, the mesonotum and abdomen are long and densely pilose. Length 20 mm.

Head, lateral aspect: The head is rather long, the face moderately prominent and retreating to some extent immediately below the antenna. The occiput is prominent, except at the immediate vertex. The eye is posteroventrally recessive, but is broadly and gradually rounded and nowhere angular. Occipital pile dense, and composed of long, bristly hairs or slender bristles which become a little stouter on the upper half. Nearly all are set back from the eye margin, except at the bottom and the top of the eye, and the bristly pile is continued across the postvertex. Proboscis conspicuous, long, laterally compressed, slightly arched and therefore concave below; it is strongly attenuate and pointed and very similar to *Lastaurus*, with a strong basal carina. Palpus clearly of two segments, the first segment excavated, the second quite short and robust, microporate, with coarse pile on all sides and a ventroapical tuft of 8 or more stout bristles. First segment with numerous, long, bristly hairs. The antenna is attached at the upper fourth of the head, elongate, rather slender, about the same length as the head. The first two segments are long, subequal, with several bristly hairs ventrally and laterally. The second segment has 1 or 2 very stout, long, apical bristles. The third segment is of nearly uniform width, slightly wider distally, 1½ to 2 times as long as the first two segments, and has a large, oblique, dorsal, spoon-shaped opening and spine.

Head, anterior aspect: The head is wide, though not wider than the thorax. The face is quite wide, about one-third the head width and slightly wider below. Face pubescent, densely covered with uniformly dense, long, slender bristles or bristly pile. Front short, sunken in the middle with a dense, lateral patch of long, bristly pile. Vertex at most moderately excavated, the ocellarium large with vertical sides and bearing between the ocelli 1 long, stout and 1 weak bristle and the same number and type of bristles between the posterior ocelli. Anterior eye facets moderately enlarged.

Thorax: The thorax is dull and pollinose, densely long, coarsely pilose with a bare stripe in the middle of each side posteriorly. There is a wide, poorly differentiated acrostical band of pile. The dorsocentral elements are differentiated only behind the humerus, where they become very strong, with 10 long pairs. Humerus only with dense, long pile. The lateral complement of very long, stout bristles as follows: 1 posthumeral, 2 notopleural, 5 supraalar, 5 postalar, and 2 pairs of bristles on the scutellum. The scutellar margin with pile, the disc pollinose only. Pleuron without bristles but with much long, coarse, dense pile over the whole propleuron, cervical sclerite, dorsal surface and posterior half of the mesopleuron, a large oval patch on the upper sternopleuron and a wide, large, oval patch on the metapleuron. Metasternum pilose laterally and ventrally. Postmetacoxal area membranous. Tegula with short bristles, the basalares pollinose only. Prosternum dissociated.

Legs: The legs are quite stout without being swollen. All bristles of the legs very stout; few bristles on the femora. Pile of the legs is abundant and subappressed. Hind femur with 1 lateral bristle on the basal third, a transverse cluster of 3 subdorsally on each side at apex. Middle and anterior femora similar, these apical bristles a little more slender. The middle femur has a stout, lateral bristle at the apical sixth, 1 anteriorly at the apical third. The anterior femur with 2 posteriorly, 1 at the middle, and 1 beyond. Hind tibia with 4 dorsal, 8 lateral, 6 anteroventral; the apex has 8 bristles. Middle tibia with 6 or 7 dorsal, 10 posterior, 2 very long, posteroventral on the outer half and 10 quite long, anterior bristles, besides a few smaller ventral bristles, especially at the base. Anterior femur similar with 7 or 8 bristles in the anterior and posterior dorsal rows; it has a like number in the posterior row, and 2 in the posteroventral row. Apex with a short process and a stout sigmoid spine; the basitarsus with a patch of denticles. Claws sharp; the slender pulvilli long; the empodium bladelike.

Wings: The marginal cell is open; anterior branch of the third vein ends well above the wing apex; posterior branch far behind. First posterior cell a little narrowed; fourth closed and stalked; anal cell narrowly closed or open. Alula large; the ambient vein complete.

Abdomen: The abdomen is robust, perhaps less robust than that of *Lastaurus*. At the base it is no wider than the mesonotum, the sides a little tapered. Pile dense, long, coarse and shaggy, appressed medially on the basal tergites. In the male seven tergites with a lip-like trace of the eighth tergite. No bristles on the first tergite. Male terminalia rotate at least one-fourth, the epandrium short, and cleft to the base and widely divergent from the base with large, long proctiger. The gonopod is short but prominent and convex and bears 2 pairs of stout, blunt, elongate, posterior processes and 1 or 2 pairs of interior, recessed, slender processes. The hypandrium is broad and relatively short, leaving the genital cavity exposed. Female terminalia with spines on the acanthophorites.

Distribution: Neotropical: *Lastaurina ardens* Wiedemann (1828).

Genus *Lastaurax* Carrera

FIGURES 1071, 1080

Lastaurax Carrera, Arq. Zool. São Paulo, vol. 7, art. 1, p. 109, 1949. Type of genus: *Lastaurax lanei* Carrera, 1949, by original designation.

The following is Carrera's description in translation:

Head: Face plane in the middle, but salient in the buccal border and in the base of the antenna. Mystax located in the border of the mouth. Front with dense, lateral pile. Ocellar callosity with a tuft of fine bristles. The two segments of the palpus are continuous and not forming an angle at the junction of the two segments. The proboscis is approximately as long as the second and third segments of the antenna combined; it is sharply pointed at the apex and has a clear, dorsal ridge. The two first segments of the antenna are subequal in length. The third segment is almost two and one-half times as long as the first two segments united; it has a few cilia in the middle, is linear, and has a subapical concavity.

Thorax: Pronotum with abundant, lateral pile; mesonotum with developed dorsocentral bristles from the middle of prescutum to the prescutellar suture; lateral bristles stout; the pile is more abundant on the sides than in the middle; scutellum with two long, marginal bristles and some scattered, marginal hairs. Region of the postscutellum with the lateral callosity developed but bare. Pleuron with some hairs in the middle, which on the metapleuron are very long.

Legs: The legs are slender, with short bristles. The apical spine of the anterior tibia is fine, short and recurved. Claws sharp; pulvilli developed.

Wings: First basal cell larger than the second by one-third.

Abdomen: The abdomen is conical with not very abundant pile, except on the sides of the first tergite where it is more conspicuous. Length 16 or 17 mm.

Distribution: Neotropical: *Lastaurax lanei* Carrera (1949).

Genus *Lastauronia* Carrera

Lastauronia Carrera, Arq. Zool. São Paulo, vol. 7, p. 104, 1949. Type of genus: *Lastauronia travassosi* Carrera, 1949, by original designation.

The following is Carrera's description in translation:

Head: Face inclined and gradually becoming salient from the top to the bottom; the superior half is bare, the inferior half has some pilosity which intermixes with the fine bristles of the mystax over the buccal border. Front with abundant, lateral pilosity. The ocellar callosity is salient and has 8 to 10 long bristles. The two segments of the palpus are not continuous; the second segment is inserted in the apex of the first segment forming an angle. Proboscis a little longer than the antenna; it has a ridge on top and a fine, sharp point and is inclined downward. First segment of antenna a little smaller or shorter than the second; these two basal segments united are almost half the length of the third segment; third segment subfusiform.

Thorax: Prothorax with abundant pile and 2 or 3 pairs of bristles on the lateral lobe; over the pronotum there is a row of long, fine bristles. Mesonotum with lateral bristles and with dorsocentral bristles developed; these dorsocentral bristles extend from the anterior border to the posterior border of the mesonotum. Humerus with 6 bristles and some pile. The pile of the mesonotum is more abundant in the margins; scutellum with 5 marginal bristles, 3 on one side and 2 on the other, mixed with long, fine pile. Postscutellar region bare. Mesopleuron and metapleuron with long pile.

Legs: Strong. The apical spine of the anterior tibia is very sharp. Claws sharp; pulvilli developed.

Wings: First basal cell of wings a little larger than the second.

Abdomen: With longer, lateral pile on the sides of the first four segments and the pile of the middle of these segments short; the two last segments are considerably more narrow.

This genus is distinguished from *Lastaurus* Loew by the form of the palpus and the antenna; from *Lastauropsis* Carrera by the form of the mystax; and from the other forms in this complex by the character of the face. Length 16 mm.

Distribution: Neotropical: *Lastauronia travassosi* Carrera (1949).

Genus *Lastauropsis* Carrera

FIGURES 1072, 1081

Lastauropsis Carrera, Arq. Zool. São Paulo, vol. 7, art. 1, p. 107, 1949. Type of genus: *Lastauropsis villosus* Carrera, 1949, by original designation.

The following is Carrera's description in translation:

Head: Face inclined and gradually salient from the top to the bottom. The lower three-fourths of the face is entirely covered with a dense and uniform pile that extends down over the buccal border where we can distinguish some bristles. Front with abundant, lateral pile. Ocellar callosity salient and with a tuft of long bristles. The two segments of the tarsus are not continuous; the second segment is attached to the first in such a way as to form an angle. Proboscis larger than the antenna, with a dorsal ridge which is prominent and with the apex pointed. The third segment of the antenna is one and one-half times larger than the two basal segments united; it is fusiform and the apex is more slender than the remainder of the segment.

Thorax: Prothorax with abundant bristles and pile. Mesonotum with lateral bristles developed with also a double row of dorsocentral bristles that extend from the top of the humerus to the posterior margin. Humeral callosity with 6 large bristles; pile more abundant over all of the margins of the mesonotum. Scutellum with 2 long marginal bristles and some long convergent pile between them. Region of the postscutellum bare. Pleuron with long pile on the mesopleuron and metapleuron.

Legs: Strong with short bristles; apical spine of anterior tibia short and quite sharp. Claws very sharp; pulvilli developed.

Wings: First basal cell larger than the second by one-fourth.

Abdomen: Entirely covered with hairs which are very few or scattered on the first segment, but abundant along the sides of the remainder of the abdomen. Male genitalia a little salient, rotate, the lateral aspect situated dorsally.

This genus is separated from others of the complex by the face being inclined as in *Lastaurus* Loew, but with a dense tuft of hairs covering entirely the lower three-fourths of face; also the small size of the fusiform third antennal segment as well as the position of the palpal segments, which differentiate between *Lastaurus* and *Lastaurax* Carrera. Length 21 mm.

Distribution: Neotropical: *Lastauropsis villosus* Carrera (1949).

Genus *Lastauroides* Carrera

FIGURES 545, 1074, 1083

Lastauroides Carrera, Arq. Zool. São Paulo, vol. 7, p. 94, 1949. Type of genus: *Lastauroides alexanderi* Carrera, 1949, by original designation.

The following is Carrera's description in translation:

Head: Face plane toward the top, always with a small salience in the buccal border. Mystax formed by long bristles located in the oral margin. Ocellar salience with a tuft of variable bristles. Front with abundant pile along the sides and at the vertex. Proboscis with a dorsal ridge and slightly inclined downward. The palpus forms an angle with the junction of the two segments, but with exceptions, continuous. Third segment of the antenna at base and at apex somewhat more slender and rarely longer than two times the length of the basal segments combined.

Thorax: Lateral bristles of the mesonotum developed; dorsocentral bristles rarely absent before the suture. Scutellum with a pair of long, marginal bristles and sometimes with pile between them. Postscutellar region bare. Mesopleuron almost always with long pile.

Legs: The legs are generally slender but very robust in *Lastauroides crassitarsis*. Claws sharp; pulvilli developed.

Wings: The first basal cell a little larger than the second, and sometimes of the same length.

Abdomen: The first four segments in males with long pile, sometimes abundant; in females the pile always well reduced. Genitalia of male conspicuous, with a rotation of approximately 90 degrees.

The following characters distinguish this genus from others of the *Lastaurus* Loew complex: The disposition of the second palpal segment to arise at an angle; the form of the face which is plane at the top and salient at the buccal border; the fusiform third antennal segment which is rarely longer than the basal two combined. Length 13 to 17 mm.

Distribution: Neotropical: *Lastauroides alexanderi* Carrera (1949); *albomarginatus* Carrera (1949); *crassitarsis* Macquart (1838) [=*atratus* Bigot (1878)]; *hirtuosus* Wiedemann (1821); *melaleucus* Schiner (1868); *mixtus* Carrera (1949); *modestus* Carrera (1949); *niger* Carrera (1949).

Chylophaga, new genus

FIGURES 135, 546, 1073, 1082, 1712, 1731, 1966, 2017

Type of genus: *Deromyia australis* Ricardo, 1912.

Elongate, rather stout flies with comparatively slender, cylindrical abdomen. On the face the bristles are restricted to the epistoma. They appear to resemble *Diogmites* Loew in most details but are at once separated by the non-rotate male terminalia. This condition might possibly ally them to the non-rotate *Stenopogon* Loew group, but because of the tibial spine it is much more likely that they are related to *Saropogon* Loew. The strong, dorsocentral bristles, together with the soft, dense, fine, erect pubescence of the anterior tarsal segments separate them from most genera with which they might be confused. Length 20 mm.

Head, lateral aspect: The head is of normal length; the face very slightly visible above in profile but more prominent below. Anterior profile oval, slightly flattened in the middle. The occiput is narrowly visible in the middle, slightly more prominent below, obliterated near the vertex; pile of occiput restricted to the extreme lower portion where there is a tuft of not very long, fine hairs. There is a narrow, double row of slender, weak bristles beginning near the bottom of the occiput and continuing to the vertex; the upper elements are scarcely thicker, except perhaps behind the ocellar protuberance; these bristles are set well back from the eye margin. The proboscis is rather slender, of moderate length, directed obliquely downward, nearly cylindrical, but with a strong, dorsomedial, thinned ridge. The base is unswollen, the apex tapered to a blunt point but entirely confined to the dorsal portion for the ventral margin is plane. Apex with fine pile, the ventral portion on the basal half with a number of long, stiff hairs. Palpus clearly of two segments; first segment excavated, second segment without pore, and slightly angulate in attachment. The palpal pile is fine and long and situated on the ventral and lateral surfaces and there are some 3 ventral bristles, 2 dorsal and 3 apical bristles.

The antenna attached at the upper third of the head; it is rather long and slender, the first segment is two-thirds as long as the second, the third segment is longer than the other segments together. This segment is attenuate basally and apically and therefore somewhat swollen in the middle. The apex of the third segment bears an extremely short, subsegment which medially is obliquely truncate, open and bears centrally a minute, short, distinct spine. First and second segments with appressed, stiff setae dorsally, as many as 14 on the second segment. These segments ventrally bear long, oblique, stiff, sharp bristles more numerous on the first segment which may have 17 elements including lateral bristles. The third segment bears 5 dorsal setae.

Head, anterior aspect: The face below antenna is little more than a fifth the head width and divergent below. The face cover consists of micropubescence; pile is absent; bristles are confined to an epistomal row of 6 pairs of long, quite stout, pale, obliquely directed bristles and 2 pairs immediately above the epistomal row. Subepistomal area large, excavated, oblique and shallowly concave and pubescent laterally. The front is slightly divergent near the vertex and bears micropubescence only. The vertex is moderately excavated, the ocellar protuberance high with nearly vertical sides, the ocelli of moderate size; the protuberance bears 3 or 4 pairs of long, very stout, divergent bristles; the eye facets are strongly enlarged centrally and zoned off from the remainder by an impressed dorsal line. Eyes brilliantly green to purple.

Thorax: The mesonotum and the pleuron pollinose. Mesonotal pile scanty but fine, setate and suberect, and confined to the anterior submedial region extending as a band behind the humerus. There is a single row of fine, rather stiff, subappressed, backwardly directed, comparatively long acrostical elements, confined to the anterior half, a wide bare stripe on either side. There is a single row of 5 long, stout, dorsocentral bristles before the suture and still longer and stronger elements continued nearly back to the scutellum. Humerus anteriorly with 4 weak bristles and some scattered setae.

The remaining lateral bristles are exceptionally long and consist of 3 notopleural, 3 supraalar, 2 postalar, and 1 widely separated pair on scutellar margin; the bristles of the last 2 groups are nearly twice as long as the mesonotal height. Scutellar surface nearly flat and micropubescent only. The propleuron bears abundant pile; the upper lateral portion has 2 long bristles, the collar with 7 or 8 pairs of bristles. Middle of mesopleuron and upper sternopleuron with a patch of long, fine hairs. Pteropleuron and hypopleuron without pile; the latter has an appressed pubescent patch. Metapleuron with a vertical row of 12 long, basally stout bristles. Metanotal slopes bullose and micropubescent only. Slopes of the metasternum with long pile. Metasternum long pilose. Postmetacoxal area membranous; tegula with some stiff setae.

Legs: The legs are not thickened; the hind femur is distinctly longer than the middle pair; its pile is sparse, flat appressed and very finely setate with a scanty, erect fringe below; this femur bears only 2 bristles which are lateral and located near the base; its trochanter with a single lateral bristle; coxa with only quite stiff, bristly pile. Hind tibia rather thickly appressed setate, the medial surface with a dense brush of appressed setae from the middle. This tibia is moderately long, with stout, oblique bristles, 2 dorsal, 1 at the base, and 1 in the middle; the apex contains 2 medial, 1 dorsal, 2 lateral, and 4 ventral elements. Hind basitarsus seventenths the length of the remaining segments and with very stout, long bristles. Middle femur with a stout, posteroapical bristle and setae above beginning near the middle and a few, fine hairs below. The midtibia bears long, stout, oblique, dorsal and ventral bristles and shorter ones between posteriorly. There is 1 anterior subbasal bristle, 4 anterodorsal, the last 2 exceedingly long, 4 short posterodorsal, 4 equally short posteroventral, 2 long ventral bristles. Anterior femur with a posteroapical bristle, its tibia has only short bristles except below; they consist of 6 anterodorsal, 5 posterodorsal, 4 posteroventral, and 2 long ventral elements. The apex medially bears a long, stout, inwardly curved, pointed spine. The adjacent area of the basitarsus microtuberculate. All tarsi bear long pulvilli; long, basally thickened empodium and moderately sharp claws.

Wings: The marginal cell is open; anterior branch of third vein ends well before the wing apex; fourth posterior cell closed with a short stalk. Anal cell closed in the margin; second basal cell closed with 3 veins; alula large, ambient vein complete.

Abdomen: The abdomen is cylindroid and slightly tapered, slightly longer than the wings. Tergite one slightly thickened and barely wider than tergite two and not as wide as the mesonotum. Pile of abdomen fine, short, sharp and setate. Bristles present only on the first tergite, where there are 6 pairs, long and quite stout. Sternites with long, fine pile, except on the first sternite, which is pubescent only or with a few, fine, short hairs toward the lateral margin. In the male eight tergites present, but the eighth rather short, half the length of the seventh dorsally, a third its length laterally. In the female eight tergites present, the eighth is three-fourths as long as the seventh. Male terminalia prominent; epandrium short, broad and obtuse, overlapping above. Gonopod shorter; hypandrium undivided. Terminalia not rotate. Female terminalia with 6 or 7 pairs of spines on the acanthophorites. Ventral plate slightly compressed laterally at apex into a scooplike structure which extends a little beyond the spines.

Distribution: Australian: *Chylophaga australis* Ricardo (1912).

Genus *Questopogon* Dakin and Fordham

FIGURES 148, 182, 486, 965, 974, 1709, 1714, 1959, 1986, 2044, 2048

Questopogon Dakin and Fordham, Ann. Mag. Nat. Hist., ser. 9, vol. 10, p. 525, 1922. Type of genus: *Questopogon clarkii* Dakin and Fordham, 1922, by original designation.

These are large and comparatively robust flies with dense but short pile. All the cells of the wing are open. These flies are quickly recognized by the pair of stout, down-turned, spikelike bristles, on the ventral surface at the apex of the midtibia, that distinguish them from all asilids except the North American genus *Callinicus* Loew; from that genus they are separated by the presence of a double spine borne on a protuberance at the apex of the anterior tibia. Length 25 to 35 mm.

Head, lateral aspect: The head is of moderate length but the eye is short and slightly wider above. The face is well developed and convex; it is concave and oblique from the anterior epistomal margin to the base. The occiput is unusually thick and wide but is narrow above and obliterated at the vertex. The occipital pile is long, fine and very dense, reaching nearly to the eye margin; on the upper part are 3 fine, black bristles. The proboscis is short but compressed, the tip bluntly rounded and a little narrowed; the apex has fine pile at the tip and below and the base bears numerous, long, fine hairs. The palpus clearly of two segments and with a trace of the antepenultimate segment. First segment quite short and excavated, end segment longer and held distinctly at an angle with offset attachment; it is arcuate, cylindrical, with numerous, long, bristly hairs extending to the apex and with a lateral apical pore. The antenna is about 1¼ times the head length and attached at the upper third of the head. The first two segments are of equal length, 2 or 3 times as long as wide. The third segment is longer than the combined length of the first two segments; it is elongate, of uniform width nearly to the apex but is a little narrowed on the apical fifth; this segment bears a very short microsegment followed by a longer, conical, truncate spine tipped microsegment held at an oblique angle. The first segment bears numerous slender bristles and bristly hairs on all sides; these hairs are longer ventrally and fewer medially; second segment with 1 long, stout, ventral bristle and some stiff, bristly hairs; third segment with 3 or 4 long, dorsal and basal setae.

Head, anterior aspect: The head is moderately wide; the face below the antenna is about one-third of the head width and very slightly wider below. The supra-epistomal region has a mystax of 40 to 45 long, stiff, white hairs disposed irregularly; the upper three-fourths of the face, except immediately below the antenna has dense, pale pile which is less than half as long as the lower mystax. The front is wider than the face below the antenna and bears long pile along the sides. Vertex shallowly excavated above; the sides of the low ocellar tubercle are steep and abrupt; the tubercle bears about 15 long, black hairs. Anterior eye facets distinctly enlarged.

Thorax: The mesonotum is long, slightly convex and everywhere bears dense, fine, erect, long pile. The following complement of bristles is present: 2 notopleural, 2 to 4 supraalar, 4 postalar, and 4 pairs on the scutellar margin. The humerus and scutellar disc both bear pile. Scutellum is convex with the margin convex. Propleuron and the very low, inconspicuous pronotal collar, both with very dense, long, fine pile. Both upper and lower section of post mesopleuron with abundant, fine, long pile. Hypopleuron pilose, all areas of the pleuron micropubescent; metapleuron convex, with numerous, widespread, scattered, long, fine hairs. Metanotal callosities micropubescent only; prosternum dissociated; postmetacoxal area membranous.

Legs: The hind femur rather short and not thickened, with most bristles white; it bears 4 dorsolateral on the apical half, 2 dorsomedial at apex, 1 strong, ventrolateral subbasal and 4 extremely long ventral bristles, besides other very fine hairs ventrally and dorsally on basal half which are long basally, becoming shorter distally. Hind tibia with 6 dorsal, 4 lateral, 2 ventral bristles, all long and stout. The apex bears 1 lateral, 1 ventral, and 3 medial bristles. Middle femur with abundant, long, fine pile and 1 anterior, 1 posterior subapical bristle; its tibia with 2 basal anterior, 2 dorsoapical, 3 posterior, and 3 posteroventral bristles. The apex of its tibia characteristically bears 2 posterior and 2 short ventral, clawlike or spikelike bristles or spines which are curved downwards or backwards. Anterior femur with 2 posterior subapical bristles; anterior tibia with 3 posteroventral bristles and long, fine, ventral pile, besides short dorsal pile and 7 short, microscopic, reddish setate bristles; anterior surface with dense, reddish, short pile. The apex bears 3 ventral bristles of which one is long and stout, 1 long and 1 short medial, 2 dorsal and 1 weak, lateral bristle; it does bear ventrolaterally a short protuberance to which a curved, thickened, reddish, clawlike spine is attached, with a second, shorter but also stout spine on the same protuberance. There is no basitarsal modification. All tarsi end in well developed pulvilli, divergent, sharp claws, and stiff empodium.

Wings: The marginal cell is open but narrowed. The anterior branch of the third vein ends well above the wing apex and this vein is strongly curved forward distally; the base of the second posterior cell arises above the third vein. All posterior cells are open but the fourth is a little narrowed; anal cell widely open; the second basal cell ends in 3 veins, the middle vein short. Alula large, ambient vein complete; wings tinged with brown along the veins.

Abdomen: The abdomen is tapered but robust basally and as wide as the mesonotum; it bears dense, coarse, moderately long, semiappressed pile on the tergites; on the basal corners of each tergite the matted pile is directed conspicuously inward or medialward in a characteristic, subquadrate, tesselated pattern. Males with seven tergites and a very short, liplike protrusion of the eighth tergite medially only, from the posterior margin of the seventh tergite. Females with seven tergites, the eighth so short as to be almost concealed beneath the seventh. The male terminalia are short and reduced. The epandrium is especially reduced, short and divided into 2 widely separated, obtusely convex pieces; the space between is filled by the flattened proctiger which extends a short distance beyond the apex of the epandrium and also laterally beneath it Gonopod small and short but larger than the associated components; it expands ventrally beneath the short hypandrium. Female terminalia with more or less recessed acanthophorites which bear about 5 comparatively stout spines on each side.

Distribution: Australian: *Questopogon clarkii* Dakin and Fordham (1922).

Genus *Dakinomyia* Hardy

FIGURES 66, 510, 1075, 1084, 1801, 1802, 1896, 1900

Dakinomyia Hardy, Ann. Mag. Nat. Hist., ser. 10, vol. 14, p. 25, 1934. Type of genus: *Neosaropogon froggattii* Dakin and Fordham, 1922, by original designation.

Large flies of bare aspect with long, subcylindrical and tapered abdomen. They resemble *Stenopogon* Loew superficially but are distinguished by the rotate male terminalia and the conspicuous and exceptionally long, distal extension of the second, third and fourth posterior cells. The bristles are strong and on the face restricted to the epistoma. Length 27 to 40 mm.

Head, lateral aspect: The head is short, with the anterior eye margin at most gently convex. The face is moderately extensive with a short, low, eminence beneath the antenna and the epistoma produced to nearly the same extent and occupying at most only the lowest fifth of the face; intervening part of face shallowly concave. The occiput is not prominent but is most swollen at a considerable distance inward from the eye margin. Bristles almost at the bottom of the occiput, are moderately strong and pale as far upward as the middle of the head, at which point they become more stout and change in color to black; they are especially stout and form a deep-set patch far below the vertex; there are at least 25 black bristles on each side. Proboscis long, moderately stout, with plane lower margin and slightly convex upper margin; a high dorsal ridge is present except near the apex, where it is continued but much lower; apical fourth with a few, fine hairs almost restricted to the lower surface; middle lower surface with a pair of long oblique bristles, base with only a few hairs. The palpus is clearly of two segments, the first short and excavated, the second longer, narrowed at base and apex, and with apical pore and quite slender bristles. Antenna set just above the upper third of head and elongate; first segment nearly twice as long as wide with rather stout and long basilateral bristles and shorter ventral and dorsal bristles; second segment a little less robust, a little more than twice as long as wide with several stout, ventral bristles. Third segment as wide as the apex of the second and distally becoming as narrow as the base of the second segment; this segment is more than 1½ times the combined length of the first two segments; its apex is blunt with smaller circular opening and completely recessed and concealed spine; no dorsal setae on the third segment.

Head, anterior aspect: The face below antenna about one-fourth the head width and at most slightly divergent below. The whole face surface is micropubescent and without pile; bristles are restricted to a conspicuous, close-set, double or partly trebled row across the epistoma; these bristles are long, stout, pale and but little curved. Front broad, slightly wider than upper face, sunken in the middle, pollinose and with a patch of bristles in the middle of each half below the ocellarium, none along eye margins or none near antenna; vertex slightly narrowed, deeply excavated with slanting sides and rather large, moundlike ocellarium bearing 3 pairs of stout, long, black bristles.

Thorax: The mesonotum gently convex and not very high, strongly abrupt in front and with abundant, short, appressed, acrostical setae and a bare stripe on either side. There are 2 or 3 rows of dorsocentral elements and the area next to the humerus and lateral margin also have fine setae. Humerus with 5 or 6 bristles. Notopleuron with 2 long, stout bristles and the lateral margin in front with a double row of some 6, the inner ones shorter. Supraalar region with 4 or 5, postalar with 3 long bristles and the scutellar margin with 1 pair of bristles which are long and stout. Metanotal slopes strongly bullose, micropubescent only; mesopleuron apparently without bristles and only 2 or 3 fine hairs above and a patch of still shorter, finer pile posterodorsally. Pteropleuron and hypopleuron pubescent only. The pronotum and lateral propleuron bear some weak, long, bristly hairs; metapleuron with a narrow, vertical band of slightly curved, weak bristles. Only the lateral metasternum has pile; postmetacoxal area membranous; anterior basalare with bristly setae; prosternum dissociated.

Legs: The hind femur rather slender, densely appressed, short setate with few bristles. The bristles consist of 3 short but stout lateral, confined to the basal half; no dorsal or apical or ventral bristles. Tibia with more conspicuous bristles consisting of 4 oblique ventral, 2 oblique dorsal near the distal third, and 4 oblique lateral bristles. The apical bristles are quite stout and consist of 9 elements, 2 of them medial and 2 dorsal. Middle femur with a strong, rather long, posterior subapical bristle, the middle tibia has 3 quite long, stout, black, ventral bristles near the middle and at the outer fifth; also 3 quite short dorsal, 5 short anteroventral, 6 short posteroventral bristles. Apex provided with 8 stout bristles. Anterior femur is like the other femora, slender with 1 short but stout posterodorsal subapical bristle; its tibia has short bristles above, 4 posterodorsal, 4 more basal anterodorsal, 1 stout, ventral at the outer fifth, and 5 or 6 short posteroventral bristles. The apex of the anterior tibia bears 5 bristles and a very stout, curved spine. Basitarsus with a protuberance. Claws long, sharp, strongly arched; the pulvilli four-fifths as long as claw and thin; the empodium half as long as claw, curved and flattened.

Wings: The wings are long and rather slender. The marginal cell is open by a little less than maximal width. The second submarginal cell arises abruptly and wholly above the third vein opposite end of discal cell; it is long and narrow but strongly flared distally. The anterior branch of the third vein ends a little above wing apex, the posterior branch far behind. First posterior cell a little narrowed on the margin owing to the greater width of the second posterior cell. Second posterior cell abruptly and strongly expanded anteriorly at its base. The third posterior cell is open along the wing margin to a remarkable extent. Fourth posterior cell open but narrowed and the whole cell remarkably lengthened. Anal cell closed in the margin. Alula large, ambient vein complete. Second basal cell ends in two veins.

Abdomen: The abdomen is strongly tapered; it presents a bare appearance but has some microscopic, short setae. Sides with fine, short pile, a little longer on the sides of the first tergite, which bear posterolaterally 5 short but extremely sharp, spinous bristles. First tergite a third as long as the next. Males with seven well developed tergites present; the seventh is long; the eighth is present and quite short or even confined to a lateral right side lobe. Females with eight well developed tergites. Male terminalia rotate and of moderate size and length. The epandrium is short but is fully cleft medially, the two halves rounded, obtuse and diverging posteriorly. Proctiger extended a little beyond the epandrium and divided by a medial crease. Gonopod large and massive but short with one or two sharp-edged, blunt, short, curved processes. Hypandrium well developed and large and obtuse. Female acanthophorites with 5 pairs of long, stout, blunt spines; tenth tergite with many blunt spikelike bristles; ventral plate cleft and sunken on the distal part.

Distribution: Australian: *Dakinomyia froggattii* Dakin and Fordham (1922).

Genus *Neosaropogon* Ricardo

FIGURES 95, 467, 1586, 1697, 1771

Neosaropogon Ricardo, Ann. Mag. Nat. Hist., ser. 8, vol. 9, p. 591, 1912. Type of genus: *Dasypogon princeps* Macquart, 1848. Designated by Malloch, 1928, the first of 3 species.

Neosaropogon has one subgenus, *Lycotherates*, new subgenus.

Large flies with rather elongate, slightly clavate abdomen. These flies tend toward pale legs with considerable, pale or yellowish color on the abdomen, the sides of the mesonotum and on the antenna. They are relatively bare with scanty, scattered, setate pile and short bristles. The legs are elongate. Protibia with a long protuberance and strong, curved, pronglike spine abutting against a basitarsal protuberance; the palpus likewise is characteristic, the first segment quite short, the second segment distinctively slender, long, attenuate and tapered, the apex not bristly. These characters are shared by *Neocyrtopogon* Ricardo, which has the face prominent and distinctly rounded and convex. Length 18 to 28 mm.

Head, lateral aspect: The face is quite short across the middle and slightly more prominent beneath the antenna and distinctly more prominent on the lower portion, which is extended triangularly forward opposite the lower eye corners. Whole face very slightly concave. Occiput strongly developed medially, sloping gently to the eye margin; on the lower half it bears considerable coarse pile; slender bristles start in the middle and are situated in several rows and become more stout dorsally. The proboscis is short, scarcely extending beyond the face. Distally it is compressed laterally with blunt apex. It bears bristly pile at apex and below and with a diagonal band of slender, bristly hairs near the middle and other ventral hairs extending from the swollen base. Palpus characteristic with quite short, excavated, basal segment and long, unusually slender and attenuate, microporate, second segment which bears a number of slender bristles along the middle and medially near the apex but none at the apex. The antenna situated at the upper fifth of the head, first two segments of equal length and each 1½ times as long as wide. The first segment has only lateral and dorsal, slender bristles, the second segment has setae above, 2 below, and 1 ventral bristle at the apex. Third segment at the base as wide as the second segment, long, slightly tapered beginning at the basal third. The apex bears a small, semifused, spoon-shaped microsegment with exposed spine.

Head, anterior aspect: The head is not quite twice as wide as high, the face is wide, almost a third the head width and slightly wider below. It bears dense, golden, appressed micropubescence without pile and bears just above the epistoma a curved, transverse row of 10 quite stout, spinous bristles of no great length. Front barely wider than the upper face, the vertex slightly narrowed. The front is bare, wrinkled, with a longitudinal crease on each side and continued backward. Eye margins with coarse, bristly pile. The front is rather short, the vertex is moderately excavated, the ocellarium large, obtuse with vertical sides and it is set rather far backward. On each side it bears 3 or 4 slender bristles. The eye rises considerably above the front and the antenna is actually attached at a level almost equal to the vertex. Eye strongly flattened in the front, the facets not greatly enlarged.

Thorax: The thorax is large and high, the mesonotum of moderate height but only slightly convex except anteriorly and posteriorly where it is rather abrupt. The pile is scanty and bristly, with a wide, bare, medial area containing only 3 or 4 acrostical hairs. Dorsocentral setae are differentiated in the middle of the mesonotum and behind the suture form a row of 6 or 7 somewhat longer, slender bristles with a rounded patch of setae on each side in front of the scutellum. Lateral bristles prominent and rather long. There are 2 humeral, 3 notopleural, 2 or 3 supraalar, 2 or 3 on the postalar callosity, but no bristles on the flattened, thick scutellum. Scutellar disc finely micropubescent. Pleuron thinly pollinose, black with very little pile except on the propleuron. Pronotum with long, spikelike bristles. Metapleuron with a vertical row of 6 bristles. Postmetacoxal area membranous. Prosternum fully dissociated.

Legs: All the femora are stout, the tibia comparatively stout and all of the legs rather elongate. They have sparse, small, appressed setae. The femora have quite short, spinous bristles, the tibiae bear very stout, spinous bristles which are a little longer. Hind femur with 4 dorsolateral bristles, 2 of them on the outer fourth, 6 ventrolateral bristles mostly along the base and middle and 1 stout, subapical, ventral medial bristle. Hind tibia with 6 prominent dorsolateral and 5 similar ventromedial bristles; also 5 ventral bristles. Hind basitarsus quite long and comparatively slender, fully as long as all of the remaining segments. Middle femur with 3 anterolateral bristles and near the apex 1 prominent posterodorsal bristle. Middle tibia with 2 stout basal and 1 distal anterodorsal bristle, 5 small posterodorsal bristles, 7 posteroventral, 4 anteroventral, and 1 long, dorsoventral bristle. Anterior femur only with 2 small, ventral basal bristles and 1 small, subapical, posterodorsal bristle. Its tibia has 1 stout, basal, anterodorsal bristle, 4 smaller posterodorsal bristles, 9 posteroventral and 1 long, distal, ventral bristle. This tibia bears at apex a long, prominent protuberance with long, slender, curved, blunt, pronglike spines apposed to a denticulate, conspicuous, basitarsal swelling. Anterior and middle basitarsus both quite long and slender. Claws stout, sharp; pulvillus and empodium well developed.

Wings: The wings are tinged with brown and yellow. Marginal cell widely open. First posterior and fourth posterior cells a little narrowed. Anal cell widely open, medial crossvein and upper part of anterior intercalary vein of equal length. Alula well developed; ambient vein complete; posterior crossvein absent.

Abdomen: The abdomen is comparatively elongate, yellow with black bands and clavate from the end of the rather long second segment. The surface is scantily covered with fine, suberect setae. Sides of first segment with 5 stout, spinous bristles. Males with seven tergites, the eighth well concealed. Male terminalia largely tucked under the seventh tergite where it cannot be inspected. The proctiger is conical, quite large and undivided dorsally.

Distribution: Australian: *Neosaropogon claripennis* Ricardo (1912); *harlequina*, new species; *minor* Hardy (1934); *nigrinus* Ricardo (1918); *princeps* Macquart (1848) [=*canus* Walker (1849), *numicius* Walker (1849), *allia* Walker (1849)].

Lycotherates, new subgenus

Type of genus: *Lycotherates harlequina*, new species.

Flies related to *Neosaropogon* Ricardo, but with long, tapered abdomen, longer than the wings in contrast to the shorter, clavate abdomen of *Neosaropogon*. The antenna bears a comparatively long, distinct microsegment; in *Neosaropogon* it is very short or more or less fused and cup-shaped.

Lycotherates harlequina, new species

Large flies with elongate, slender abdomen, somewhat tapered; abdomen as long or longer than the wings and characterized by the general, light reddish brown coloration, dense, golden micropubescence of the face, the sharply delimited, basal, black bands and narrow, posterior, black bands on the abdominal tergites. Length 25 mm.

Female: Head: The head is black but densely overlaid with brownish, golden micropubescence on the occiput, front and vertex and with bright, golden micropubescence over the whole face. Ground color of face reddish brown. Palpus brownish yellow, attenuate, with the apex darker. Proboscis similarly colored, but more brownish on the outer half and narrowly black along the upper border. All bristles and pile of the head reddish yellow, except the mystax, which is composed of 1 row of 8 pairs of long, yellowish white bristles. Antenna pale orange with the third segment becoming smoky brown or blackish on the apical fourth. The microsegment is 2 or 3 times as long as wide, blackish, truncate at apex, with a bristly spine at the tip.

Thorax: The thorax is reddish brown with black markings restricted to the mesonotum where they form a broad, medial stripe reaching from the anterior margin a short distance past the suture and there is submedially an equally wide, black stripe, which begins well behind the humerus and ends a short distance from the scutellum and posterior callosity. Extreme lower border of scutellum darker in color. The middle of the metanotum is widely black.

Legs: The legs with the hind pair considerably lengthened, the color everywhere light reddish or orange brown, except that the apical fourth of the hind femur and the apical third of the hind tibia are black. All pile reddish golden, the bristles of the same color, all bristles quite stout but unusually short. Laterally on the hind femur are 14 such bristles and ventrally 7. Hind tibia with 8 dorsomedial, 9 dorsolateral, and 6 ventrolateral bristles.

Wings: The wings distinctly tinged with brown and rather uniformly covered with reddish brown villi. The anterior half of the subcostal cell is especially dark, due to the dense villi.

Abdomen: The abdomen is light brownish or reddish orange. Basal margin of first tergite blackish along the middle only. Just before the middle of the second tergite is a prominent, transverse, black band not quite reaching the margin laterally. Base of third tergite with a broader, black band more closely approaching the lateral margin. Base of fourth and fifth tergites likewise with broad, black bands, which reach the margin. Sixth tergite with a much narrower, basal, black band. Fourth and fifth tergites with a narrow, posterior, black border, which largely results from the overlapped portions of the following tergites shining through. All these black bands of the abdomen are rather sharply delimited. Acanthophorites with 5 pairs of stout, long, reddish spines. Pile of the abdomen scanty, fine and setate, becoming a little more abundant and longer on the last two tergites. Sides of first tergite with 4 short, red bristles.

Type: Female, 37 miles southeast of Perth, West Australia, January 6, 1954. Collected by F. M. Hull; type in author's collection, paratype from West Australia in the Commonwealth Scientific and Industrial Research Organization collection in Canberra, Australia.

Genus *Neocyrtopogon* Ricardo

FIGURES 104, 550, 1093, 1102, 1706, 1790, 1791, 1912

Neocyrtopogon Ricardo, Ann. Mag. Nat. Hist., ser. 8, vol. 9, p. 589, 1912. Type of genus: *Neocyrtopogon bifasciatus* Ricardo, 1912, by monotypy.

Large, pale colored flies with rather long legs and elongate, subclavate abdomen. They are related to *Neosaropogon* Ricardo but the antenna is longer, especially the third segment and the proboscis is distinctly short, directed forward but not extending beyond the middle face and barely beyond the epistoma; an important difference lies in the character of the face itself which is rather strongly produced in the middle but uniformly rounded and convex from above and below and from each side, without pile and with bristles confined to a single row of 3 or 4 short, stout, pale elements above the epistoma. Palpus and protibial and basitarsal structures characteristic and the same as in *Neosaropogon*. Scutellum without bristles; prosternum dissociated. Female with acanthophorites and spines. Length 16 to 24 mm.

Head, lateral aspect: The head is slightly higher than long; the eye is a little wider below the middle and slightly recessed anteriorly above so that more of the dorsal occiput is exposed than the ventral occiput. The face is prominent throughout, rather strongly convex both above and below and also from either side; it is a little longer and more prominent below. Occiput moderately exposed, a little more exposed dorsally but near the eye margin it is almost plane with the eye and increases very gradually towards the medial position. The pile on the lower half of the occiput and the weak bristles on the upper half of the occiput begin a considerable distance from the eye margin. Proboscis distinctly shortened, barely extending beyond the epistoma and directed almost horizontally forward. The anterior half is somewhat compressed laterally and the apex is distinctly bifid as in *Neodioctria* Ricardo. From the lateral aspect the apex of the proboscis is bluntly V-shaped with a fine tuft of pile only on the apical and lateral surface. There are some strong hairs ventrally in the middle. Dorsal keel absent. Palpus characteristically long, exceptionally slender on the ultimate segment, which is spindle-shaped, thinned and tapered both towards base and apex and has an oblique, apical pore. The palpus is bare, except for 1 or 2 ventromedial, stiffened hairs and 1 or 2 basilateral hairs. Also, the short, widened, more or less fused basal segment has some long, fine pile.

Antenna elongate, longer than the head and attached almost on a plane with the vertex, and corresponding to the upper sixth of the eye margin. The first two segments are nearly equal, a little longer than wide, with a few, stiff hairs dorsally and ventrolaterally; at the apex the second segment ventrally has 2 or 3 short bristles. Third segment more than 2½ the combined length of the first two, as wide as the end of the second or barely wider; it is of uniform width to the outer fourth from which point ventrally it tapers to the blunt apex. The apex has a small, oblique opening with concealed spine; the whole segment is strongly compressed laterally.

Head, anterior aspect: The face is quite wide, barely wider below the middle at the point of greatest convexity. It is about one-third the total head width. Surface densely golden pubescent on a yellow background. Face almost without pile except for a few ventral hairs. It has a single ventral row of 8 rather short, downturned, moderately stout, pale bristles. Cheeks very short, not extending below the eye. Subepistoma small and nearly horizontal. The front is rather short, as wide as the face, the vertex almost as wide. Sides of front with a few, slender, bristly hairs. The ocellarium is moderately high and wide with nearly vertical sides but it is not conspicuous; it has a few very fine hairs between the posterior ocelli. Central eye facets very little enlarged.

Thorax: The thorax is moderately convex, a little more so behind. It presents a very bare appearance with some golden pollen anteriorly and laterally and a few, fine hairs laterally in front of the suture. Notopleuron with an oblique row of 3 bristles, moderately stout and long. Anteroventral corners of humerus with 2 bristles, supraalar region with 3, postalar callosity with 1, and the thick flattened scutellum with pollen only and no bristles or pile. Rim of scutellum quite convex in section. Metanotum laterally unusually bullose with pollen only. The pleuron is almost without pile except on the propleuron, which has copious hairs and the metapleuron has a vertical row of 5 rather stiff, short bristles. Posterior mesopleuron with a vertical band of golden pubescence and another on the posterior part of the thorax. Prosternum fully dissociated; postmetacoxal area membranous; lateral metasternum with pile.

Legs: The hind femur is considerably elongate and very slightly but gradually dilated. It bears 1 subapical, stout bristle and 1 central lateral weak bristle. Hind tibia with 5 short dorsolateral, 4 dorsomedial, 6 ventrolateral and 3 ventromedial bristles. This tibia is as long or longer than the femur; the immediate apex is a little swollen and bears 2 dorsal, 1 lateral, and 2 ventral bristles. Tarsus slender, the hind basitarsus nearly as long as the next 4 segments. Anterior and middle femora each with 1 posterior, subapical bristle and the middle femur with an anterior bristle on the outer fourth. The middle and anterior tibia are almost identical in bristles. There are 4 basal, anterodorsal elements on the middle tibia, 1 on the anterior tibia, both tibiae with 4 basal posterodorsal bristles, both with 6 or 7 posteroventral and each with a long, stout, ventral bristle on the apical seventh, both with long, slender basitarsus, the middle basitarsus with strong, long, anterior bristles. Anterior tibia at apex on the medial or anterior side with a well developed protuberance and a characteristic quite slender but obtuse, curved, pronglike spine. Anterior basitarsus subbasally with a flangelike, elevated swelling which bears 5 or 6 rows containing more than 20 stubby, conical spines. Claws slender, sharp, curved from the base. Pulvillus well developed; empodium a little swollen.

Wings: The marginal cell is widely open but the apex of the second vein is a little advanced forward. Anterior branch of the third vein ends well above the apex of the wing, the posterior branch considerably farther behind. All posterior cells open, the first and fourth slightly narrowed. Anal cell widely open, posterior crossvein is very short; the rectangular anterior crossvein enters the discal cell beyond the outer third. Alula well developed. Whole wing tinged with brown or yellow and villose.

Abdomen: The abdomen is elongate and rather slender, hemicylindrical and subclavate, narrowed on the last three segments and at the end of the second. The base is a little less wide than the thorax. Males with eight tergites, females with eight, the eighth is two-thirds as long as the seventh. Male terminalia prominent. Female with acanthophorites and 6 pairs of long, prominent, rather sharp spines. Eighth sternite with an apical cleft, which is turned upward.

Distribution: Australian: *Neocyrtopogon bifasciatus* Ricardo (1912).

Genus *Rachiopogon* Ricardo

FIGURES 96, 551, 1088, 1097, 1613, 1838

Rachiopogon Ricardo, Ann. Nat. Hist., ser. 8, vol. 9, p. 590, 1912. Type of genus: *Dasypogon grantii* Newman, 1857, by original designation.

Large flies of bare appearance with extremely short pile. The hind femur and tibia are elongate and slender, the former a little thickened distally; all of the posterior cells are widely open. Face moderately produced, with bristles restricted to the epistomal margin and pile absent on the whole of the face. Readily distinguished from allied genera by the absence of the anterior intercalary vein, the conical, stylate microsegment on the third antennal segment, and the characteristic male terminalia reminiscent of *Chrysopogon* Roeder. The hypandrium is sulcate, greatly shortened in the middle, the superior elements all quite elongate, including the simple, subcylindroid epandrium and long, similar proctiger. Length 20 mm.

Head, lateral aspect: The face is moderately produced throughout, never becoming very prominent but slightly more produced on the lower third so as to leave the intervening space concave. The eye is of moderate length but unusually high, rather flattened and only slightly convex along the middle portion. Posteriorly, it is nearly plane in the middle but strongly, convexly recessive above and below. Occiput is short throughout its entire length, the eye rising above the occiput dorsally and extending beyond it laterally. Pile of occiput only moderately abundant and long, but coarse; delicate bristles appear in the middle or even below the middle and often consist of 20 on each side; the more dorsal elements a little more stout. Proboscis is slender, slightly tapered laterally to a rounded point, a little more swollen towards the base dorsally and it is a little longer than the face or extends a little beyond the face. Palpus prominent, clearly of two segments; the first segment is a little more than half as long as the second, distinctly excavated, free medially as well as laterally; the second segment is clavate and bears numerous, dorsal, bristly hairs that extend from the base laterally and extend ventrally from the outer half; there is some additional, somewhat more stiff, apical pile and 5 and 6 slender bristles. There is a distinct, rather large apical and lateral pore. First segment with numerous bristly hairs ventrally and at its apex; the second segment arises from the side.

The antenna is attached at the upper fourth of the head; the first 2 segments are short and stout, the first being slightly longer than the second; third segment missing, described by Ricardo as being, "cylindrical, the notch at the apex best seen from behind and armed with a very short, blunt spine." First segment ventrally and ventrolaterally at the base with 5 short bristles, a black seta laterally in the middle and 3 or 4 short setae dorsally; second segment with 3 ventrolateral, basal, short setae, and 8 longer dorsal bristly setae.

Head, anterior aspect: The face below the antenna is two-fifths of the head width and slightly divergent below. Subepistomal area rather large, oblique, deeply concave and bare. Face densely and minutely pubescent or pollinose, apilose with 5 pairs of rather long, stout, pale bristles transversely across the epistoma; subepistomal margins without bristles. Front rather large and long, pale pollinose, with a single slender bristle near the middle of each half and set a short distance in front of the ocelli. Side margins and the remainder of the front quite without bristles or pile. Vertex moderately excavated with steeply sloping sides, the ocellarium large, rather high and domelike, with slanted sides, large ocelli, and a pair of stout, rather long, curved, divergent bristles directed forward and arising behind the ocelli. Anterior eye facets strongly enlarged and zoned.

Thorax: The thorax is thinly pollinose, dark in appearance but light reddish brown in oblique lights. The mesonotum is abrupt anteriorly, gently sloping behind. Pile of mesonotum is scanty, short, bristly and appressed. There is a distinct row of minute, appressed, acrostical pile widely separated from similar dorsocentral pile. The latter is poorly differentiated laterally on the anterior half, but developed behind the suture into 3 or 4 pairs of moderately long, stout bristles. Humerus with short, bristly hairs only. The lateral bristles are long and stout and consist of 2 notopleural, set rather far apart, 2 supraalar, 2 postalar, and an equally stout pair of long scutellar bristles. Scutellum flat, the margin, however, a little rounded; the base with a shallow crease and no pile. Propleuron ventrally with a dense, large tuft of fine, stiff pile, the pronotum with 7 pairs of slender bristles, the posterolateral pronotum with some scattered, fine hair and a single, distinct, rather long, stout bristle. Mesopleuron apilose, sternopleuron with 1 or 2 minute hairs dorsally, pteropleuron and hypopleuron apilose, the convex metapleuron especially convex and creased behind, with a vertical row of 5 long, slender bristles and some, additional, bristly hairs. Lateral metanotum pollinose only and protuberant. Posterior half of the lateral metasternum with a few, fine hairs, the chitinized ventral matasternum apilose; postmetacoxal area membranous, tegula with several setae; the anterior basalare with a row of 7 or 8 short, bristly hairs.

Legs: The legs are comparatively slender, the hind femur very slightly widened apically. All the femora dorsally, the hind pair laterally, the other pairs anteriorly with moderately abundant, quite fine, short, appressed pile; posterior surfaces of all femora, especially ventrally, almost without pile. Ventral surface of the hind tibia with scanty, appressed pile, except on the outer third where there is a brush of ranked setae which medially reaches to the basal third. In the type of genus the following moderately long, stout, oblique bristles present: on the hind femur 1 lateral at the basal third and apparently no others; its tibia has 3 well developed, dorsomedial, 2 dorsolateral, 5 ventrolateral, and 1 dorsolateral bristle. Middle femur with

2 anterior bristles along the middle and 1 posterodorsal subapical bristle; ventral surface with a short, basal bristle and almost no pile. This tibia has 2 short anterodorsal on the basal half and 2 long stout ones, 1 before the middle, 1 at the outer fourth, and 4 quite short posterodorsal, 2 or 3 short posteroventral, and 2 long, stout ventral bristles. Anterior femur without bristles; this tibia has 4 short anterodorsal on the basal half, 4 posterior bristles distributed throughout, 4 short posteroventral bristles, and 1 long conspicuous ventral bristle on the outer fourth. Apex with a well developed, curved, pointed, slightly sigmoid spine. The basitarsus has a row of nodules. All the basitarsi elongate and slender, the hind pair as long as the following three segments. Anterior pair only as long as the first two segments. Fourth anterior tarsal segment shortened; all tarsi end in slender, sharp claws curved from the base; long pulvilli and basally stout, bladelike empodium, a little more than half as long as the claw.

Wings: The marginal cell is open by less than its maximum width; anterior branch of third vein ends almost at the apex; posterior branch ends considerably to the rear; all the posterior cells widely open, the fourth is narrowed to two-thirds its maximum width. Anal cell narrowly open; second basal cell ends in two veins, alula wide, ambient vein complete; the anterior crossvein enters the discal cell a little beyond the middle. The entire wing is villose and pale brownish orange.

Abdomen: The abdomen is robust, basally about as wide as the mesonotum and rather strongly tapering from the end of the third tergite with parallel sides before this. In the female there are eight tergites, but the last three are vitreous instead of dully pollinose. The eighth tergite is two-thirds as long as the seventh, the seventh four-fifths as long as the sixth, and this part of the abdomen is rather strongly cylindroid. Pile of the abdomen dense, flat appressed. Only the sides of the first tergite have fine, long, bristly pile; laterally and transversely this tergite has 10 rather short, but quite stout bristles. Male terminalia not rotate, quite elongate, both the superior forceps and gonopod prominent; there is no exposed hypandrium so that the interior cavity is left quite exposed. Female terminalia with 6 pairs of unusually spatulate, apically rounded, spoonlike spines and possibly with 1 or 2 ventral, accessory bristles but mostly short, bristly hairs.

Distribution: Australian: *Rachiopogon grantii* Newman (1857); *nigrinus* Hardy (1926).

Hardy (1934) believed White's species *Metalaphria aurifacies* belongs here.

Genus *Deromyia* Philippi

FIGURES 147, 532, 1089, 1098, 1839, 1844

Deromyia Philippi, Verh. zool.-bot. Ges. Wien, vol. 15, p. 705, 1865. Type of genus: *Deromyia gracilis* Philippi, 1865. Designated by Williston, 1901.

Small or medium size slender flies which differ from *Diogmites* Loew with which they have been confused by many authors in a number of particulars. As Bromley has pointed out, they tend to resemble the Ethiopian *Neolaparus* Williston in general appearance and their real relationship is still uncertain. The third antennal segment is rather strongly dilated, comparatively short, with conical, attenuate microsegment. The palpus is elongate, slender and clavate apically. Face nearly apilose, with only 2 or 3 bristles above the epistoma. These are very bare flies of reduced pile, and closed and stalked fourth posterior cell. The long, slender hind femur is clavate. Length 12 to 18 mm.

Head, lateral aspect: The head is of moderate length, the face is short throughout, but slightly more prominent above the epistoma; its height also is distinctly reduced. The occiput is poorly developed, although gradually becoming more prominent medially, and likewise ventrally due to the recession of the eye. The pile of the occiput is loose, scanty, fine ventrally, with slender bristles beginning below the middle of the head and on each side above with a deepset, postvertical cluster of 3 containing at least 1 quite stout bristle and may be reduced in quantity to this one element. Proboscis of moderate size but distinctly compressed laterally and bluntly rounded at the apex. Palpus of two segments, the first minute and short and excavated, the second elongate, slender, clubbed at the apex and bearing an apical tuft of fine bristles on all sides. The antenna is attached at the upper third of the head, shorter than the total head length, the first two segments short, subequal, with numerous long, bristly setae above and below the third segment about as long as the first two combined. This segment is strongly dilated in the middle and bears a short, conical microsegment with spine and dorsally 3 or 4 small bristles or setae.

Head, anterior aspect: Width of head moderate, the face wide, with parallel sides, not quite one-third the head width, densely pubescent with 5 or 6 fine, short hairs on either side and above the epistoma 1 row of 2 pairs of moderately long, stout bristles and sometimes a few fine hairs. Subepistomal region unusually long and oblique. Front distinctly wider than the face below antenna, convergent at apex, short and pollinose, with several fine bristles on either side. Vertex vertically excavated on either side, the prominent ocellarium has vertical sides, without bristles except behind the ocelli where they are small.

Thorax: The thorax is pollinose, the pile extremely reduced to a very few fine, scattered, bristly hairs. There are no acrostical elements but there are fine differentiated dorsocentral bristles or bristly hairs which become a little longer posteriorly. The lateral complement of bristles contains no humeral bristles, 1 or 2 notopleural, 1 supraalar, 1 postalar, and no scutellar bristles. Propleuron with only fine, scattered hairs. Metapleuron with a vertical row of fine hair only. All remaining pleural areas with or without a few fine, scattered hairs. Hypopleuron with a suberect, conspicuous patch of setae. Metasternum unusually elongate and prominent, ventral portion pollinose, both portions with fine pile; postmetacoxal area membranous; prosternum dissociated.

Legs: The femora and to some extent the tibiae and tarsi unusually elongate and slender. Hind femur especially attenuate, with the apical fourth clavate. Pile reduced to a few scanty, fine, appressed setae. Bristles greatly reduced in number, especially on the femur. The hind femur bears 3 lateral bristles and on either side at the apex 2 rather prominent stout bristles, 1 above the other. Also near the middle are 2 medial bristles. Middle femur with 1 or 2 anterobasal bristles, 1 long, stout, ventral, basal bristle, which is rather characteristic, and at the apex 2 stout anterior and 1 posterior bristle. Anterior femur similar, the ventral element lacking, and the apical element reduced to 1 bristle. Posterior tibia swollen towards the apex, with 4 slender reduced bristles in each dorsal row, and 2 or 3 ventrolateral bristles. There are 4 rows on each of the remaining tibia with 5 elements in the posterior row of the middle tibia. Protibia with a short process and a short, robust, pointed spine. Basitarsus with an elevated flange and instead of denticles there are spinous setae. Claws slender, sharp. Pulvilli and empodium well developed.

Wings: The wings are broad, the marginal cell widely open; base of the second submarginal cell often with a spur vein. Anal cell closed and stalked; fourth posterior cell closed with a short stalk and its end vein forms a right angle with the lower end vein of the discal cell.

Abdomen: The abdomen is elongate, slender, cylindrical, least wide at the end of the second tergite and slightly widened beyond. The pile is greatly reduced to fine, scattered setae more numerous on the terminal tergites and sternites and also longer. Only the first tergite with bristles, and these may be absent or consist of 2 stout pairs. Males with eight tergites, the eighth tergite extremely short and almost concealed. Females with eight tergites, the last being large. Male terminalia strongly rotate, the epandrium large, shield-like with only a very shallow posteromedial indention and no cleft. Gonopod well developed. Hypandrium small. Female terminalia with 6 pairs of short, small spines upon the acanthophorites.

Distribution: Neotropical: *Deromyia fulvipes* Philippi (1865); *fuscipennis* Blanchard in Gay (1852) [=*fascipennis* Philippi (1865)]; *gracilis* Philippi (1865).

Genus *Cyrtophrys* Loew

FIGURES 180, 552, 566, 1091, 1100, 1893

Cyrtophrys Loew, Bemerkungen über die Familie Asiliden, p. 3, 1851. Type of genus: *Cyrtophrys attenuatus* Loew, 1851, by monotypy.

Moderately large, pale, slender, elongate flies with somewhat drooping abdomen, unusually elongate antenna and greatly reduced pile and bristles. Related to *Mirolestes* Curran and separated by the long antenna. Length 12 to 18 mm.

Head, lateral aspect: The face is rather well developed above and slightly more prominent below, where it is obtusely triangular. The eye is strongly convex anteriorly, very slightly convex in profile behind and almost plane over much of the middle portion. At most it is very slightly recessive below. The occiput is scarcely visible in profile, obliterated above and only narrowly visible below. The pile is restricted to a few scattered hairs below and along the middle 10 or 12 stiff hairs. Bristles are restricted to a short, weak, appressed pair near the upper fifth of the occiput and a stout, conspicuous pair located deep behind the vertex. The proboscis is strongly compressed laterally, gently convex on each side, with unusually high, thin, medial ridge which, however, does not begin until a short distance from the base, at once reaches its greatest height and then tapers away completely on the apical third. The apex is bluntly pointed, plane below, tapered and rounded above with a few fine hairs at the apex and 6 fine hairs in the middle below. The proboscis is swollen only from the dorsal aspect towards the base and is directed nearly straight downward. Palpus clearly of two segments; the first segment is excavated, second segment porate and with subapical attachment; both segments have long, stiff hairs; ventrally the apex of the second segment bears 5 or 6 stiff bristles. The antenna is placed at the upper fifth of the head; it is unusually long and slender; the first segment is barely longer than the second. The third segment is three times as long as the basal segments combined, it is slender, of nearly uniform thickness, obtusely rounded at the apex with slight dorsal, subapical reduction in thickness; dorsally at the middle there is a clear excision bearing a small, distinct spine. First two segments with a few, long, stiff hairs below and again at the apex above. Third segment with 8 dorsal setae on the basal half.

Head, anterior aspect: The face below antenna is about one-fourth of the head width, with parallel sides; the subepistomal region is long, oblique, nearly plane, with medial ridge and bare. The face is micropubescent with a few scattered hairs below, and with 2 very long, stout, and 2 short, very slender bristles on the epistomal margin, none along the subepistoma. Front slightly divergent, the vertex slightly convergent. The front is short, polished, with 2 or 3 minute hairs and linear pubescence along the eye margin. Vertex only moderately excavated, the sides nearly vertical, the ocellar protuberance quite low and bearing 2 minute hairs behind. Eye facets centrally enlarged.

Thorax: The thorax is densely pollinose, including the pleuron where the cover is more in the form of micropubescence. The mesonotal pile is restricted to a very scanty row of dorsocentral elements containing only 6 or 7 hairs anteriorly and 4 fine hairs on the posterior half, 1 short and 1 long, slender bristle; acrostical elements absent. Humerus with only 1 or 2 hairs. The lateral bristles are long, stout and strongly attenuate and consist of 1 notopleural, 1 supraalar, 1 postalar, and no scutellar bristles. Scutellar surface flat and pollinose, apilose. Propleuron below with 8 or 9 long, fine hairs, the pronotum with 4 pairs of stiff, long hairs, the posterolateral section with 2 or 3 hairs. Upper mesopleuron, its anterior extension and posterior margin each with 3 to 5 short, fine hairs. Pteropleuron and hypopleuron without pile; the latter has a long patch spot of pubescence. Metapleuron with 8 to 10 long, stiff hairs; metanotal slopes micropubescent only. Sides of metasternum with 5 or 6 fine hairs, the metasternum with short, fine, scattered pile; postmetacoxal area membranous, but pollinose; tegula pubescent.

Legs: All three pairs of legs are elongate and rather slender. All legs with greatly reduced, scanty, fine setate pile. The hind femur is slightly thickened distally; the bristles consist of a pair located dorsally a short distance from the apex with an additional bristle medially near the apex; also 3 short, stout, lateral bristles on the basal half and 3 short medial bristles on the basal half. Ventral surface with only 5 or 6 minute hairs. The hind tibia bears rather longer, quite sharp bristles which consist of 4 to 5 lateral, 7 dorsal, 2 ventral, both beyond the middle; apex with 1 dorsal, 1 medial, 2 lateral, and 3 ventral bristles. Middle femur with 2 dorsal, 1 rather longer anterosubapical and 2 short, anterior bristles on the basal third; its tibia bears 5 short dorsal, 6 anterior and an extremely long anterodorsal bristle at the outer third; ventrally there are 3 still longer, stout, oblique bristles. Anterior femur with 1 anterior subapical and 1 or 2 weak posterior bristles basally; its tibia bears only short bristles, 6 or 7 anterior, 5 dorsal, 6 posterior elements. Apex of anterior tibia with 2 dorsal and 1 anterior bristle; ventrally it has a basally broad, expanded, very strong, somewhat curved spine apposed against a flared, basal expansion of the basitarsus. All tarsi end in well developed pulvilli, stout empodium half as long as the sharp claws.

Wings: The wings are somewhat more slender than usual, subhyaline, the surface smooth. Marginal cell widely open; anterior branch of third vein ends at apex; fourth posterior and anal cells closed and stalked; second basal cell ends in 3 veins. Alula of moderate size; ambient vein complete.

Abdomen: The abdomen is elongate, slender, slightly narrowed on the second and third tergites but in profile concave and constricted at the base of the second and third tergites and slightly on the fourth. The abdomen is as long as the wings. First tergite is scarcely swollen laterally; eight tergites are present in the female. Pile of abdomen exceedingly scanty, microscopically fine, short and suberect, sides without longer fringe of pile. Sides of first tergite with 2 small bristles. Sternites with only a few scattered minute hairs. Female terminalia short with a row of spines on the acanthophorites; the lateral process has 3 or 4 short, stout, bristly spines. No males seen.

Distribution: Neotropical: *Cyrtophrys attenuatus* Loew (1851).

Genus *Mirolestes* Curran

FIGURES 71, 530, 1092, 1101, 1821, 1829

Myolestes Brèthes, Anal. Mus. Nac. Buenos Aires, ser. 3, vol. 4, p. 338, 1904. Preoccupied Aves, 1850. Type of genus: *Myolestes lynchii* Brèthes, 1904, by monotypy.

Myiolestes Kertész, Catalogus dipterorum . . ., 1909, emendation.

Mirolestes Curran, Amer. Mus. Novitates, no. 806, p 1, 1935, change of name.

Elongate, slender flies of extremely bare aspect with very little pile. The abdomen is slightly spatulate or clavate. In many respects they are strikingly similar to *Neolaparus* Williston to which perhaps they are related. They are best recognized by the slender form, the long cervix, the short, wide head, the virtual absence of pile on the face with bristles restricted to the epistomal margin. The subepistomal region is long and slightly oblique. Ocellar bristles are reduced to the postvertex. Length 15 to 18 mm.

Head, lateral aspect: The face in profile is short above and becomes gradually a little more prominent at the epistomal margin; the whole face is nearly plane, or with a very slight concavity on the lower portion. Eye short, plane in posterior profile except ventrally and at the vertex with slight anterior recession ventrally. The occiput, however, is prominent, especially towards the middle of the head and below. The very long cervix allows it to be freely inspected in every part of it. Occipital pile is fine, long and scanty, and extending in scattered fashion over the lower half; above the middle there are a few weak bristles, subappressed and short, 5 or 6 in number, but behind the ocelli, rather deeply placed, there is a pair of long, stout, sharp bristles. The proboscis tends to be directed nearly straight downward, is strongly compressed laterally and in profile bluntly and obtusely rounded with a conspicuous medial ridge dorsally on the basal half. The proboscis is a little widened laterally towards the base, bears a few, fine hairs at the apex and below and a few long hairs ventrally at the base. The palpus is clearly of two segments, the first segment excavated, the second porate, clavate, cylindrical with numerous, stiff bristles ventrally, laterally and at the apex. The antenna is attached at the upper third of the head. It is moderately long and slender, approximately as long as the head, the first two segments equal; the third is a little longer than the first two, laterally compressed, and bears dorsally and medially a short, subapical spine. The pile of the first two segments consists of numerous, subappressed, dorsal and ventral bristly hairs, which become weak bristles on the second segment. Third segment with 8 oblique setae dorsally.

Head, anterior aspect: The face below antenna is less than one-third of the head width and has nearly parallel sides, at most slightly divergent below. Subepistomal area unusually long, subvertical, nearly plane and bare. The face is densely micropubescent with about 12 fine hairs on each side on the lower portion of the face, and epistomal bristles in a transverse row which may consist of only 1 or 2 pairs and a few additional fine, slender hairs; at least 1 pair is curved, stout and long, and directed obliquely forward and downward. The front is polished and bare, except for a narrow band of pubescence along the eye margin and has 3 or 4 fine, short hairs laterally. Vertex moderately excavated, the ocellar protuberance rather large with steep, slanting sides and only 2 or 3 fine, short hairs posteriorly behind the ocelli. Eye facets enlarged centrally.

Thorax: The thorax is everywhere appressed micropubescent. Pile of mesonotum is very scanty, fine and setate, acrostical elements absent, dorsocentral bristles or hairs present, becoming a little longer and stouter posteriorly. Humerus with a few, fine hairs. The lateral bristles are long and stout and consist of 1 notopleural, 1 supraalar, 1 postalar, and no scutellar bristles. Scutellum flat, wrinkled, pubescent and apilose. Anterior ventral propleuron with 10 to 12 fine, long hairs. The pronotum has 4 or 5 fine hairs on each side. Upper mesopleuron with 5 or 6 fine, short hairs, 3 or 4 on the posterior hypopleuron; pteropleuron and sternopleuron apilose. Metapleuron with 6 or 7 very slender, long, bristly hairs. Metanotal slopes micropubescent only. Lateral metasternum polished, with some pile; ventral metasternum chitinized, without pile; postmetacoxal area membranous; tegula pubescent only. Prosternum quite small and dissociated.

Legs: All the femora are elongate, the middle pair slightly dilated distally. The pile of the legs is very short, scanty and appressed. The bristles present consist of 2 laterally near the base of the hind femur, 2 medially before the middle, 2 rather stout, long bristles medially at the apex and 1 dorsally at the apex. Hind tibia with 5 stout, moderately long dorsal bristles, the first of them doubled and with 4 lateral and a single ventral bristle near the apex. Ventral surface of this tibia with numerous, rather longer, oblique setae. A brush of setae present on the distal half begins at the basal third and becomes ranked into conspicuous, straight, transverse rows that appear like scales in some lights. Middle femur with 5 lateral bristles on the basal half and 3 medial and a long, stout, subapical basal bristle laterally, dorsally and medially. Middle tibia with 5 dorsomedial, 5 dorsolateral, and 2 ventral bristles confined to the outer half. The apical circlet has 10 bristles. Anterior femur with 2 bristles at the apex dorsally and posteriorly. Its tibia with 5 dorsal, 5 posterior, 1 very long ventral, and 1 equally long, subapical, anterior bristle. A brush of setae begins at the basal third. Apex of anterior tibia with a strong, basally swollen, elongate spine. Basitarsus with a triangular plate. The anterior basitarsus and succeeding segments ventrally have a dense, short, erect fringe of fine pile on the ventrolateral half, replaced by appressed setae on the opposite half. All tarsi end in sharp claws, long pulvilli, and empodia.

Wings: The marginal cell is widely open; anterior branch of the third vein ends at wing apex, the posterior branch well behind it; first posterior cell widely open, fourth closed and stalked; anal cell closed and stalked. Alula short; second basal cell ends in 3 veins; ambient vein complete. The wing is subhyaline with glassy appearance; everywhere microvillose.

Abdomen: The abdomen is elongate and subclavate, the first 2 or 3 tergites in lateral profile are corrugate, or bullose posteriorly and depressed anteriorly. Males with seven tergites, the seventh at least three-fourths as long as the sixth. There may be a lateral trace or lip of the eighth tergite exposed. Females with eight tergites, the eighth nearly as long as the second. Pile of abdomen very sparse, fine and suberect, leaving the abdomen almost bare and shining. Sides of the first tergite with 1 or 2 short bristles. Abdomen approximately as long as the wings. Male terminalia rotate and dominated by the uncleft, unnotched epandrium which together with the semifused, thinned proctiger forms a hemicylindroid sleeve or collar; the apical proctiger has a small dorsal, inwardly curled process which meets the opposite process; and below a longer, more triangular, thin process which is only a little curved inward. Gonopod moderate in size, with a long, slender, flat process and an interior, shorter, toothed process. Hypandrium distinctly narrow but moderately long.

Distribution: Neotropical: *Mirolestes albimanus* Carrera (1949); *barbiellinii* Curran (1935); *facialis* Curran (1935); *lynchii* Brèthes (1904) [=*pleuralis* Curran (1935)].

Genus *Neolaparus* Williston

FIGURES 520, 573, 1090, 1099, 1768, 1991, 2013

Laparus Loew, Bemerkungen über die Familie Asiliden, p. 4, 1851. Preoccupied Lepidoptera, 1820. Type of genus: *Laparus tabidus* Loew, 1851, by monotypy.

Neolaparus Williston, Psyche, vol. 5, p. 255, 1889, change of name.

Cenopogon Wulp, Tidjschr. Ent., vol. 41, p. 120, 1898. Type of genus: *Dasypogon volcatus* Walker, 1849, as *Cenopogon bifidus* Wulp, 1898, by monotypy.

Flies of medium size with quite slender, slightly clavate abdomen, slender, elongate legs, elongate neck and with short, reduced pile. On the face the bristles are restricted to 1 row along the epistomal margin, and in some instances reduced to 1 pair. Anterior basitarsus with a single flange. Probably the nearest New World related genus is *Mirolestes* Curran with closed and stalked fourth posterior cell and different male terminalia. Length 15 mm.

Head, lateral aspect: The head is comparatively long. The face is prominent throughout but especially so on the lower portion where it is comparatively protuberant. The eye is strongly recessive anteroventrally. Both anterior and posterior profiles are strongly convex. The occiput is obliterated from the middle of the head but prominent below and more swollen medially. Pile is abundant, long and fine, with only 2 bristles, these located behind the vertex and rather widely spaced; the upper occipital pile is somewhat more stiffened. The proboscis is moderately long, laterally compressed, smooth and polished with high dorsomedial ridge. The apex is slightly attenuate from the dorsal aspect and bears a few, fine hairs. The base is not swollen and has 5 or 6 long hairs below and it is directed nearly horizontally forward. The palpus sometimes appears to have one segment only; there is a very short basal segment, more in evidence in those individuals in which it is sometimes elbow-shaped. It is about 4 times as long as wide, cylindrical, not porate and bears a number of long, stiff hairs ventrally and at the apex. The antenna is attached just above the middle of the head in profile, of moderate length; the first segment is a little shorter than the second. The third segment is twice as long as the second; it is greatly expanded dorsoventrally just before the middle and again narrowed near the apex. It bears a rather short, conical, apically truncate subsegment to which is attached a small, conical spine. First segment with only 2 or 3 setae below and 3 above; second segment with 4 long setae ventrolaterally and 6 above. Both segments largely pubescent. Third segment with several rather long, appressed setae in the middle dorsally.

Head, anterior aspect: The head is nearly twice as wide as high. The face below antenna is approximately one-third the head width and slightly divergent below. The subepistomal area is relatively small, almost horizontal, concave and bare. Face micropubescent, with thinly scattered, fine pile over the whole, except immediately beneath the antenna and with 2 pairs of rather strong and 2 or 3 pairs of quite weak bristles along the epistomal margin; in the middle immediately above the epistoma there is often an additional pair of still more stout bristles. The front is of the same width as the face, the vertex slightly convergent; the front bears laterally along the eye margin a group of about 7 fine hairs and 4 or 5 others submedially. Vertex moderately excavated with rounded sloping sides. Ocellar protuberance moderately high with large frontal ocellus; the sides are sloping and there are 5 pairs of short, fine hairs behind. Eye facets enlarged centrally.

Thorax: The thorax, including the pleuron, is pollinose. Mesonotum with pile restricted to acrostical and dorsocentral rows of stiff, small, sharp setae and 1 or 2 rows of fine hairs laterally and 4 or 5 fine hairs on the humerus. The complement of stout, moderately long, lateral bristles consists of 1 notopleural, 1 supra-alar, 1 postalar, and no scutellar bristles. All presutural setae minute. Scutellum thick, pollinose with about 7 minute setae on each side. Lower propleuron with 10 or 12 fine hairs; pronotum with 20 or more fine hairs, 5 on the posterior section; 3 or 4 on the anterior prolongation of the mesopleuron, 4 or 5 very short hairs posteriorly on the mesopleuron, similar groups on the upper sternopleuron, anterior hypopleuron, and pteropleuron. Metapleuron with a vertical row of 9 delicate hairs. Metanotal slopes micropubescent only; metasternal slopes with 10 or 12 fine hairs; ventral metasternum with 5 or 6 fine, short hairs; postmetacoxal area membranous; tegula pubescent only. Prosternum quite small and dissociated.

Legs: The legs are elongate and rather slender, the hind femora slightly dilated apically. All the legs are densely covered with appressed, basally thickened, attenuate setae including the ventral surfaces of the femora, and their tibiae. Tibial setate brushes present only on apical sixth of hind tibia and narrowly along whole anterior tibia. The hind femur has 2 medial bristles at the apex, 1 lateral and 1 dorsal subapical, besides 6 lateral bristles distributed over the middle of this surface, and 4 ventral bristles on the basal half. The hind tibia bear somewhat longer bristles, 4 dorsal, 3 anterior, 4 ventral, and 4 ventromedial bristles. Hind tibial apex with 8 long bristles. The middle femur bears 3 anterior and 2 posterior on the basal half, has 1 anterior and 1 posterior at the apex, and 2 basal ventral elements. The middle tibia bears 4 dorsal, 4 anterior, 5 posterior and 2 quite long, stout ventral bristles beyond the middle; the apical circlet has 10 bristles. Anterior femur with only 1 bristle at apex anteriorly and posteriorly and 2 basal ventral elements; its tibia has 3 dorsal, 3 anterodorsal, 5 posterior, and at the apical fifth a pair of long, oblique, stout, ventral bristles. Apex with a single exceptionally long anterior, 2 short anterior, 2 dorsal, 1 posterior and also an unusually long, stout curved spine pressed inward against a nodular, flangelike expansion of the basitarsus. All tarsi end in well developed pulvilli; empodium three-fourths as long as the sharp claws.

Wings: The wings are of moderate width and sometimes broad; they are hyaline or lightly or deeply tinged with brown. Marginal cell widely open, anterior branch of third vein ends at the apex; all posterior cells may be widely open or the fourth posterior cell may be narrowed at the margin. Anal cell open, second basal cell ends in two veins; alula large, ambient vein complete.

Abdomen: The abdomen is long and rather slender, subcylindrical, slightly clavate posteriorly and as long as the wings. The first tergite is slightly swollen and convex laterally. The pile of the abdomen, including the lateral margins, consists of dense, basally stout, sharp, subappressed microsetae. There is a large, apilose, pollinose, raised triangular area at the base of the second tergite. Bristles present on the sides of the first 3 tergites; there usually are 3 on the first tergite, 2 on the second and 1 on the third tergite. Second sternite with fine pile, others with stout setae. The male with seven tergites; the female with eight, the eighth long. The male terminalia is conspicuous and large, and clublike and completely rotate. It is dominated by the remarkably deep, bowllike swelling of the inverted epandrium, uncleft and with transverse posterior margin, to which is fused the even longer, equally deep and swollen, thinned, hemicylindrical proctiger (I interpret the whole of this structure as belonging to the ninth and tenth segments but it is possible it represents the eighth tergite as well). The gonopod is robust basally, separated from the epandrial complex by an apical and sometimes a basal space; it tends to be thrust upward against the proctiger with a bristly, posterior, attenuate process, curved backward at a right angle; it tends to be semifused below to the prominent, ventrally swollen mammiform hypandrium, held in a dorsal position.

The gonopod bears a medioventral process with bristles and on each side two other interior processes cloaked by the hood of the proctiger; one of these is pronglike and slender without bristles, the other broad and short with setae. The aedeagus is remarkably long, slender, tubelike, often S-shaped and extending out and beyond the cavity. Female terminalia with acanthophorites and 4 or 5 pairs of partly recessed spines. Basal plate with triangular, produced apex which is medially notched or cleft. Ventral margin of the eighth tergite with a medial ridge.

The type of Wulp's species *Cenopogon bifidus* has been compared with Ethiopian *Neolaparus* species and I can find no basis for separation. The type of genus *Neolaparus tabidus* was uncertainly ascribed by Kertész to "?Brazil, ?Ethiopia." There is hardly room for doubt that *N. tabidus* is an Ethiopian species. The genus is a large and characteristic element in the southern African fauna. The only other species listed from the New World is *Laparus argentinus*, described by Wulp, which has recently been made the type of the new and unrelated genus *Aczelia* Carrera. A few species of *Neolaparus* are found in the Orient.

Distribution: Ethiopian: *Neolaparus albicinctus* Ricardo (1900); *albopunctatus* Macquart (1846) [=*spinther* Walker (1849)]; *?alcippe* Walker (1849); *?anaxilas* Walker (1849); *angusticornis* Ricardo (1925); *apertus* Karsch (1886); *apicalis* Bromley (1936); *atrox* Bromley (1936); *aulicus* Wiedemann (1828) [=*anticus* Loew (1860), *maculiventris* Loew (1858)]; *banana* Curran (1927); *bicolor* Loew (1858); *bivittatus* Curran (1934); *braunsi* Bromley (1936); *caliginosus* Loew (1857); *clausus* Loew (1860); *cuneatus* Loew (1858); *dimidiatus* Bromley (1936); *esuriens* Bromley (1936); *faustus* Karsch (1886); *foedus* Loew (1863); *fugax* Bromley (1936); *fulvipennis* Bromley (1936); *funestus* Loew (1857); *?gracilipes* Loew (1857); *holotaenia* Speiser (1910); *?letifer* Walker (1851); *?limbithorax* Macquart (1846); *longicornis* Curran (1927); *lubumbashi* Bromley (1935); *melasomus* Loew (1857) [=*melanosomus* Schiner (1866)]; *metallica* Bromley (1936); *moerens* Wiedemann (1828); *munroi* Bromley (1936); *niger* Bromley (1936); *ophion* Speiser (1910); *oralis* Wulp (1884); *ornatus* Bromley (1936); *pedunculatus* Loew (1857); *pollinosus* Bromley (1936); *pulchellus* Bromley (1936); *pulchriventris* Loew (1857); *rubrifemoratus* Bromley (1935); *rufus* Bromley (1936); *similis* Curran (1927); *singularis* Bromley (1936); *silaceus* Hermann (1907); *solus* Bromley (1936); *squalidus* (1857); *pollinosus* Bromley (1936); *pulchellus* Brom-(1849); *trifasciatus* Oldroyd (1939); *?videns* Walker (1851).

Oriental: *Neolaparus cerco* Walker (1849); *volcatus* Walker (1849) [=*bifidus* Wulp (1898), *hypsaon* Walker (1849)].

Genus *Pegesimallus* Loew

FIGURES 224, 580, 1086, 1095, 1735

Pegesimallus Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 14, p. 344, 1858. Type of genus: ***Pegesimallus ursinus*** Loew, 1858, by monotypy.

Pagesimallus Verral, *in* Scudder, Nomenclator zoologicus, p. 243, 1882, *lapsus.*

Medium size, delicate flies, the dorsal margin of the abdomen strongly corrugate in profile, the metasternal area elongate, the mesonotum rather strongly arched and high anteriorly with dense, remarkably fine pile over the whole disc. They are related to *Neolaparus* Williston. They are distinguished by the wide face which bears abundant, very fine, delicate, long pile in addition to the single pair of supraepistomal bristles. The male terminalia are similar to that of *Neolaparus*. Abdomen somewhat drooping and subclavate. Length 10 to 14 mm.

Head, lateral aspect: The face is unusually prominent, very slightly convex, long in profile on the dorsal portion and considerably longer on the ventral part, most but not all of it due to the posterior recession of the eye. The eye is comparatively short, somewhat more narrow on the dorsal half, moderately convex anteriorly, and gently convex behind. The occiput is developed only medially, from which point it slopes immediately and gradually down to the eye margins; the outer portion of the head therefore has the external occiput very short, and quite eliminated in profile dorsally. Pile of occiput moderately abundant, very fine and crinkly and reduced in quantity over the middle portion, where it is largely replaced by slender, bristly hairs. These bristles become a little better developed on the ventral portion of the occiput and are absent dorsally in contrast to the usual situation. The proboscis is laterally compressed, with an exceptionally high, prominent, dorsomedial ridge confined to the middle portion and basally sloping rather rapidly down to the base and distally gently down to the small but bluntly rounded apex, leaving the ventral surface nearly plane. The apex and the ventral apical fifth bear numerous, rather stiff, short hairs. The basal half of the ventral surface has 10 to 12 long, fine hairs and a row of 4 transverse, stiff, bristly hairs ventrally, in the middle of the proboscis. Proboscis is directed obliquely forward and downward. Palpus of two segments, the first short, excavated, the second longer, cylindrical, with numerous, stiff, long, slender bristles on all sides and the apex.

The antenna is attached at the upper fourth of the head, moderately elongate, the first segment as long as the second. The third segment is 1½ times as long as the combined length of the first two segments, laterally compressed, considerably widened on the outer half, attenuate basally and rather abruptly narrowed apically. It has a short microsegment which carries a minute, apical spine. First segment with some moderately long, bristly hair dorsally and ventrally, second segment with similar bristles and these are a little more stout; third segment with 10 to 12 moderately long, dorsal bristles.

Head, anterior aspect: The cheeks are not developed below the eye. The face below antenna is about two-fifths the head width and slightly divergent below. Subepistomal area rather large, deeply concave but nearly horizontal or only slightly oblique. The face is pubescent, densely, long, fine pilose, with 4 pairs of long, slender bristles above the epistomal margin. Front very slightly widened, pollinose, with abundant, long, fine, bristly pile. Vertex but moderately excavated, slightly narrowed, the ocellarium large, prominent with very large, anterior ocellus and bearing 5 or 6 pairs of rather slender, anteriorly curved, bristly hairs and at least as many pairs of longer, stiff hairs posteriorly. Anterior eye facets strongly enlarged centrally.

Thorax: The thorax is minutely appressed micropubescent. Pile of mesonotum very dense, exceptionally fine, long and crinkled. There is a wide band of acrostical pile separated by a narrow apilose area. Dorsocentral pile undifferentiated, except posteriorly; while not or scarcely longer, it is very slightly stiffer in character. Humerus with fine pile only. Laterally the bristles consist of 2 long, moderately stout notopleural, no supraalar, and on the postalar 2 or 3 long, stiff hairs. Whole scutellum including the margin with quite long, fine pile. Scutellum slightly convex, moderately thick, pollinose. Propleuron with scanty, fine pile ventrally and with a band of similar pile on the pronotum and on the posterolateral segment. Bristles absent. Mesopleuron densely, long, fine pilose on the posterior half; similar pile long and abundant on the posterior half of the sternopleuron, the anterior and posterior hypopleuron and pteropleuron, and widely over the metapleuron. Bristles are absent. Lateral metanotum micropubescent only; lateral metasternum with abundant, long pile which becomes especially dense, long and prominent on the elongate, shining, heavily chitinized ventral metasternum. Postmetacoxal area membranous; anterior basalare with numerous, long, fine hairs; the tegula with setae. Prosternum small and dissociated.

Legs: All of the femora are slender, the hind pair elongate, very slightly dilated toward the apex and all of the femora with long, abundant, subappressed, stiff setae, dorsally and laterally. These setae become longer medially and on the first two pairs of legs they are longer posteriorly. The following complement of short, weak bristles is present: on the hind femur 6 lateral including 1 at the apex, 1 medial at the apex, and 1 dorsolateral and 1 dorsomedial bristle at the subapex. There are 7 or 8 weak ventrolateral bristles and numerous long, suberect setae ventrally on the hind femur. Hind tibia slender throughout, the bristles stronger, the apex at most very slightly widened. This tibia is as long as the femur and has 4 to 5 dorsomedial, 2 medioventral, 3 dorsolateral, 3 stout ventrolateral, and 2 additional, quite fine, ventrolateral bristles on the basal half. Middle femur with 4 anterior bristles, including 1 at the apex and 1 at the subapex anterodorsally and posterodorsally. Middle tibia with 3 posterodorsal bristles, 1 of them at the extreme base and the last at the middle, and 4 anterodorsal, 1 also at the base and the last at the outer fourth. There are 2 quite strong, ventral bristles on the outer half and 5 posteroventral shorter but also stout bristles. At the apex are 2 dorsal, 1 anterior, 1 posterior, and 4 ventral bristles. Anterior femur shorter than the middle pair and with 2 weak bristles anteriorly near the apex; this tibia has 3 dorsal, 5 or 6 posterior and a pair of quite stout, rather long, ventral bristles subapically. The apex of this tibia has a strongly produced, anteroventral lobe carrying a curved spine. Anterior basitarsus unmodified; comparatively slender, as long as the next two segments combined; all tarsi end in slender, sharp claws, well developed spatulate pulvilli, and a long, bristle-like empodium swollen at the base.

Wings: The marginal cell is widely open; anterior branch of the third vein ends at the wing apex; posterior branch ends a considerable distance behind the wing apex; first posterior cell widely open, but by less than its maximum width; fourth posterior cell open but strongly narrowed; the anterior crossvein enters the discal cell at the basal third; the middle end vein of the second basal cell is short; the anal cell is closed in the margin; the alula is moderately wide, the ambient vein complete.

Abdomen: The abdomen is subclavate, distinctly more narrow basally than the mesonotum; convex across the tergites, and the second and third tergites especially arched and convex from the lateral aspect; the second has an additional, subbasal arch and this tergite is distinctly longer than the remaining. In the male seven tergites present, the sixth two-thirds as long as the fifth, the seventh is less than half as long as the sixth. Pile of the abdomen minute but abundant and subappressed dorsally, becoming slightly longer laterally but quite long and fine on the sides of the first and second tergites. Bristles absent on all tergites. First tergite apilose, second and third with clumps of long, fine pile similar to the pile of the metasternum. Male terminalia half-rotate and generally similar to *Neolaparus*. The ventrally placed epandrium is prominent, elongate, arched and scooplike; it is fused to the thin, equally long and prominent proctiger which is truncate and hemicylindrical apically. The hypandrium is obtuse, ventrally rounded and extends up laterally to meet the epandrium. Midway it encloses tightly the basally broad gonopod but is not fused to it. Gonopod with rectangularly bent, stout process which, after the bend, is posteriorly produced. Cavity open but aedeagus small and concealed. Females with acanthophorites, a row of short spines on each side.

Distribution: Ethiopian: *Pegesimallus apicalis* Bromley (1947); *claelius* Walker (1849); *ursinus* Loew (1858).

Genus *Lagodias* Loew

FIGURES 185, 99A, 99B, 128, 523, 1051, 1060, 1598

Lagodias Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 14, p. 345, 1858. Type of genus: *Lagodias albidipennis* Loew, 1858, by monotypy.

Moderately large flies of bare aspect with long, slender legs and long, slender clavate abdomen. The cervix is long, bristles are reduced on the face to 1 or 2 long hairs; the proboscis is elongate and greatly compressed laterally. The wings are long and slender. These flies are closely related to *Neolaparus* Williston. The females are distinguished with difficulty but the males are easily recognized by the copious, lateral fringes of long, flattened scales on the hind femur, tibia and tarsus. Both sexes of *Lagodias* may be separated from the related *Neolaparus* and also from *Pegesimallus* Loew by the absence of the ventral hypopleural patch of dense pile. Both of these other related genera have this patch present above the hind coxa. Length 25 mm.

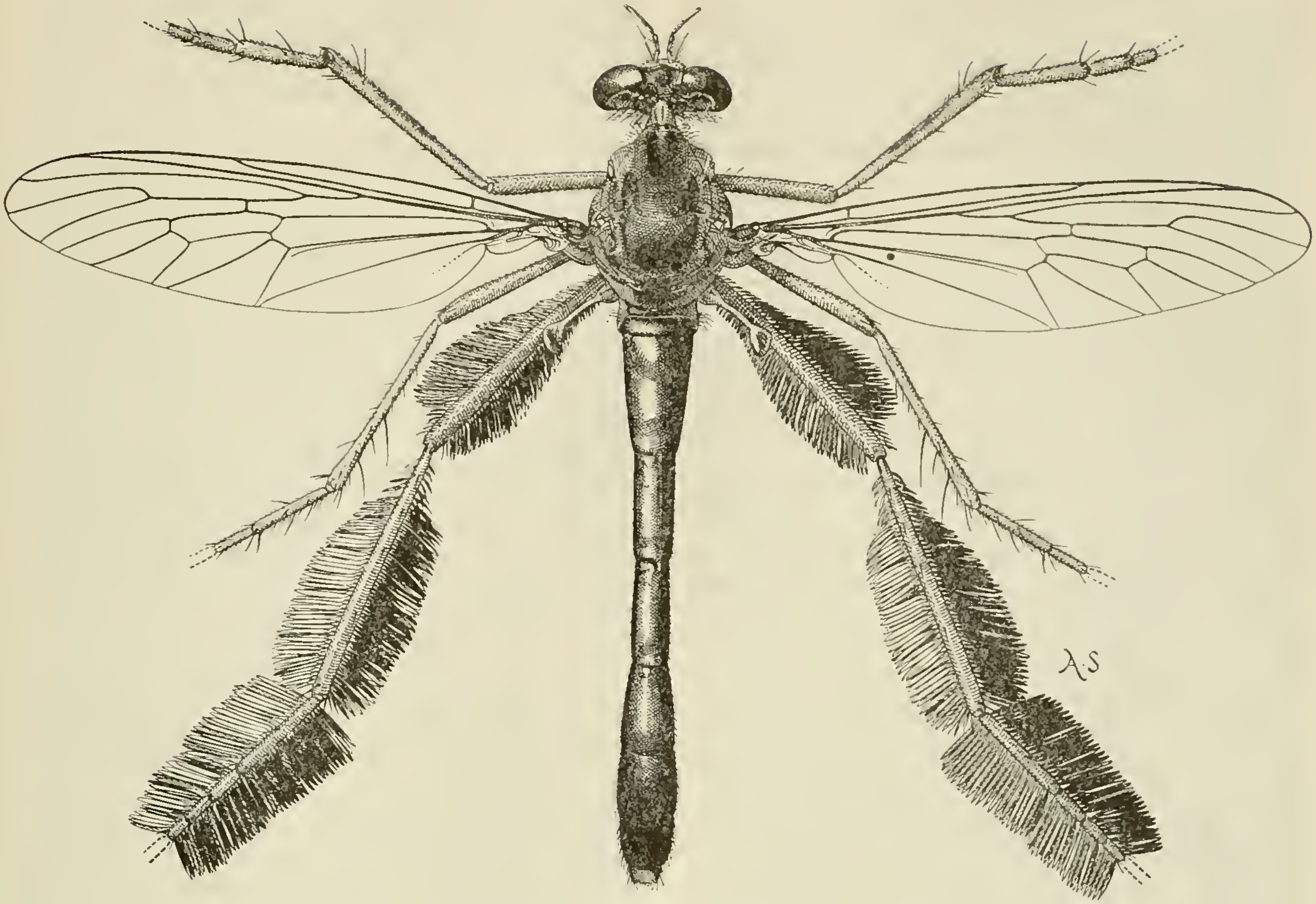
Head, lateral aspect: The face is moderately prominent, a little more extensive at the epistoma and gently convex or subbullose dorsolaterally. The occiput is very poorly developed, nearly obliterated in profile but slightly swollen in the medial region. The occipital pile is moderately abundant, long and fine; bristles are absent or reduced to bristly hairs behind the vertex. The proboscis is long, slender, strongly compressed laterally, with rounded apex and plane below; it is tapered dorsally and appears constricted basally because the medial ridge is restricted to the middle portion. The apex bears a little fine pile below and the middle of the base has a few fine, long hairs. Palpus with the first segment short, excavated, fused at the base and virtually eliminated. The second segment is long, cylindrical, a little constricted ventrally in the middle and bears a few, extremely long, fine hairs along the whole ventral surface and a number of long, stiff bristles apically; pore absent.

Head, anterior aspect: The face below antenna is one-third the head width. The subepistoma is large, as long as the face, oblique, concave and bare. Face densely pollinose for the most part, usually bare in bullae if these are present and bearing 1 or sometimes 2 very long, stout pairs of oblique bristles. Sides of the face with 10 to 12 fine hairs, the lower ones along the subepistomal margin longer but all quite slender. The antenna is attached above the upper third, long and slender; the first segment stouter but considerably shorter than the second; the second segment is 3 or more times as long as its apical width and narrowed basally. The third segment is 1½ to 2 times the combined length of the first 2 segments, slightly dilated on the outer half. It bears a large, short microsegment, open apically, which carries a short spine. Front pollinose, with medial fissure, submedial bullae, the ocular margins and the submedial area with 4 or 5 long, fine hairs; vertex deeply excavated, the ocellarium large, with steeply slanted sides, large ocelli, and 2 or 3 pairs of moderately long, fine, bristly hairs behind the ocelli. Anterior eye facets a little enlarged.

Thorax: The thorax is pollinose, the pile of the mesonotum is scanty but long and bristly and restricted to the lateral margins; there is a well developed double row of acrostical elements, a large patch of setae or bristly hairs medial to the humerus and dorsocentral bristles which become a little stouter but not longer. Humerus with only rather fine, short pile. The lateral bristles are long and stout and consist of 1 notopleural, 2 or 3 supraalar, 1 postalar, and no scutellar bristles. Scutellum flat, thick and pollinose. Propleuron with only scanty, fine, long pile including the pronotum; the cervix is unusually long. Posterior mesopleuron, upper and anterior sternopleuron, posterior and anterior hypopleuron with scanty, long, fine pile. Metapleuron with similar pile and 2 or 3 long, slender bristles. Metanotal slopes micropubescent only; lateral and ventral metasterum with scanty, long, fine pile; postmetacoxal area membranous; tegula with bristles. Anterior basalare with a few, fine hairs. Prosternum small and dissociated.

Legs: The legs are exceptionally long and slender and with scanty, fine, appressed, reduced pile; such bristles as are present are stout but short. The following complement is present: hind femur with 1 apical lateral, 1 subapical dorsolateral, and 1 dorsomedial; the tibia has 4 dorsal bristles, the basal element doubled. In males the hind femur, tibia and tarsus bear on each side a remarkable, close-set, single rank or fringe of long, wide, thin, pointed, striate scales which forms a quite broad, conspicuous, lateral and medial row on the sides of these legs. The middle and anterior femora generally lack such a fringe. Middle femur with 3 or 4 minute, posterior and 5 anterior bristles; its tibia has 4 dorsal, the basal element doubled, 4 anterior bristles, 5 or 6 posterior, 5 ventral, the 2 elements of which are long, stout and oblique. Anterior femur with a minute bristle posteriorly towards the base and 1 at the apex on either side. Anterior tibia with 3 or 4 dorsal bristles, the basal element again doubled, also 6 posterior and a pair of stout, long, ventral bristles near the apex. The apex bears a stout protuberance which carries an apical spine or spinous bristle. Basitarsus with a long, flangelike plate. All basitarsi exceptionally long and slender. All tarsi end in long pulvilli and empodium and sharp claws.

Wings: The wings are comparatively long and hyaline. Marginal cell and all posterior cells widely open; the anal cell open; the fourth posterior cell may be slightly narrowed; second basal cell ends in a short



TEXT-FIGURE 16.—A species of *Lagodias* Loew.

middle vein; anterior crossvein at the basal third of the discal cell. Alula moderately wide; ambient vein complete.

Abdomen: The abdomen is unusually long and slender, subcylindrical, gently clavate and as long as the wing. In profile the second segment is concave dorsally, with a single, medial basal bulla; the third segment is slightly concave basally. The second tergite and to some extent the next three are considerably lengthened. Pile of the abdomen very scanty, minute and appressed and almost wanting, longer only laterally and terminally on the seventh segment. Sides of the first tergite with a single, weak bristle. Males with eight tergites, but the eighth is reduced to an extremely short, lateral lip on the left side, the seventh is nearly as long as the sixth. Male terminalia rotate one-half; the epandrium is in ventral position and forms a convex, lengthened, basketlike or troughlike structure in combination with the proctiger. The male terminalia are quite similar to *Neolaparus* Williston. The aedeagus is long and prominent. Females with acanthophorites and 5 pairs of long, sharp spine. Ventral plate long, the apex produced and with a deep, divergent, medial notch.

Distribution: Ethiopian: *Lagodias albidipennis* Loew (1858); *inermis* Herman (1907); *faustus* Karsch (1886); *laticornis* Loew (1859); *teratodes* Hermann (1906).

Genus *Nicocles* Jaennicke

FIGURES 142, 572, 1139, 1148, 2014

Pygostylus Loew, Berliner Ent. Zeitschr., vol. 10, p. 16, 1866. Type of genus: *Dasypogon politus* Say, 1823, as *Pygostylus argentifer* Loew, 1866, by monotypy. Preoccupied by Hymenoptera, 1833.

Nicocles Jaennicke, Abhandl. Senckenberg. naturf. Ges., vol. 6, p. 355, 1867. Type of genus: *Nicocles analis* Jaennicke, 1867, by monotypy.

Small flies, characterized by the moderately wide, short face with reduced bristles and pile, the large, high ocellarium and the rather high, arched mesonotum.

The wings have all the cells open and often clouded on the crossveins. The apical protibial spine is very slender and strongly curved. In the males these flies are readily recognized by the wide, apically flared and completely flattened, terminal portion of the abdomen, which usually shows a silvery, shining, micropubescent sheen. Related to the *Cophura* Osten Sacken group of genera. Length 9 to 13 mm.

Head, lateral aspect: The face is scarcely visible in profile and becomes only slightly produced on the lower half. The eyes are short, equally developed above and below, convex anteriorly, slightly convex behind. The occiput is moderately developed throughout except at the immediate vertex, where it is set off from the eye by a crease. Pile of occiput scanty above, abundant, long and fine below, with 12 to 14 pairs of moderately stout bristles on the upper half. Those behind the vertex are longer and stouter. The proboscis is short, obtusely rounded apically, strongly compressed laterally and with a high, conspicuous medial ridge. The apex has a few, fine hairs, the base below has a few long, stiff hairs and the outer, dorsal margin of the proboscis on either side of the medial ridge, bears 5 or 6 short, stout bristles. Palpus with the first segment excavated, second microporate and with a number of bristly hairs below but none at apex. The antenna is attached at the middle of the head; the first two segments are quite short and beadlike, of equal length. The third segment is long and slender, slightly narrowed at the immediate base and tapered at the immediate apex; it bears two microsegments, the first quite short, the second long, attenuate with apical spine; pile of the first two segments long and stiff, with 1 to 2 stout, moderately long bristles ventrally on each segment. The front is quite steep and almost vertical, deeply excavated, the ocellarium unusually large with nearly vertical sides, large anterior ocellus, placed low and bearing 2 to 3 pairs of weak short or more rarely long stout bristles in the middle area, besides 1 slightly longer, stouter pair immediately behind the ocelli, another on the posterior slope. Eye facets strongly enlarged.

Head, anterior aspect: The face below antenna is about a fourth of the head width, and divergent below. Subepistomal area small, nearly horizontal. The face is coarsely pubescent with 2 or 3 rows of weak, long bristles above the epistoma and with some long, fine pile on the upper portion of the face.

Thorax: the thorax is pollinose, the pile of the mesonotum is scanty but rather long, the acrostical row is single and well differentiated, the dorsocentral elements become quite long, though never very stout and begin in front of the suture. Humerus with long pile; in the type of genus the following complement of stout, lateral bristles is present: 3 notopleural, 2 or 3 supraalar, 2 postalar, and 2 to 5 pairs upon the scutellum, these usually more slender. Propleuron with abundant, long, fine pile only, including the upper posterior portion. Anterior sternopleuron with a few hairs, metapleuron with 10 or 12 long, slender, bristly hairs; remaining pleuron apilose; lateral metanotal slopes micropubescent only. Lateral and ventral metasternum with abundant, long, fine pile; the latter is broad, isolated, chitinized; the postmetacoxal area is large and membranous; tegula pubescent only. Prosternum dissociated.

Legs: All the legs are comparatively slender; the hind femur is very slightly dilated distally and distinctly though moderately bent near the apex, especially in the male. The hind tibia is quite slender at the base, gradually and strongly swollen apically until at the apex 2 or 3 times as wide as the base. First two or three segments of the hind tarsus are swollen in the males, less so in the females. In the type of genus there is this complement of bristles: The hind femur without distinct bristles but 2 long, slender, bristly hairs dorsoapically and medially at the apex, and on the basal half ventrally 3 or 4 rather long, slender, erect, bristly hairs or weak bristles; the ventral pile is scanty, short and erect, the dorsal pile fine, long and flat appressed. The third tibia bears 6 or 7 dorsal bristles, the basal ones short, 2 lateral bristles at the middle and beyond, 2 longer, stouter, ventral bristles on the outer third. Middle femur with numerous, long, fine, bristly hairs ventrally in 2 rows besides several elements anteriorly. The midtibia bear conspicuous, quite long, oblique, basally stout, attenuate bristles consisting of 3 anterodorsal, 3 ventral with the longest ventral elements basal, and also there are 5 or 6 shorter posterior and 3 or 4 short dorsal bristles. Anterior femur with long, fine, ventral pile; its tibia has 2 dorsal and 3 quite long, basally stout posterior bristles; the apex has a small, strongly curved, pointed spine without basitarsal modification. All tarsi end in sharp claws, long pulvilli and slender empodium.

Wings: The marginal cell and all the posterior and the anal cell widely open. Middle vein at the end of the second basal cell long; anterior cross vein beyond the middle of the discal cell. Alula moderately large; ambient vein complete.

Abdomen: At the base, the abdomen is as wide as the mesonotum; it is a little narrowed at the base of the second segment, then slightly widened to the end of the third segment. Pile of the abdomen scanty, short, setate and appressed, a little longer on the sides especially on the first 2 tergites. First tergite laterally with 3 or 4 long, slender bristles. In the male 6 tergites present; at the end of the second tergite the abdomen begins to widen, and on the fourth to the sixth it is quite flat and flared into a shovellike plate which completely covers the remaining tergites and the rather small terminalia. In the last 2 tergites, in males the fifth and sixth, are densely silvery pollinose or appressed micropubescent when viewed from the front. Female with 8 tergites, the eighth a third to half as long as the seventh, which is a little shorter than the sixth. Male terminalia rotate one-fourth to the left, rather small and inconspicuous. It is dominated by the epandrium which is cleft and slightly divergent from the base, with the enclosed proctiger extending a very little way beyond. The gonopod is robust basally, distinctly separated, but shorter than the epandrium; it is attenuate distally. Hypandrium narrow but comparatively long; cavity small and open. Female terminalia with 5 pairs of short, spikelike spines laterally.

Nicocles Jaennicke is a small but characteristic Nearctic genus found in both eastern and western United States and southern Canada. It is most abundant in the northern Pacific states; one species is found as far south as Mississippi. The type of genus is found in Mexico.

Distribution: Nearctic: *Nicocles abdominalis* Williston (1884); *aemulator* Loew (1872); *argentatus* Coquillett (1893); *bromleyi* E. Hardy (1943); *canadensis* Curran (1923); *dives* Loew (1866); *engelhardti* Wilcox (1946); *lomae* Cole (1916); *pictus* Loew (1866); *politus* Say (1823) [=*argentifer* Loew (1866)]; *pollinosae* Wilcox (1946); *punctipennis* Melander (1923); *reinhardi* Bromley (1934); *rufus* Williston (1884); *utahensis* Banks (1920).

Neotropical: *Nicocles analis* Jaennicke (1867).

Genus *Cleptomyia* Carrera

FIGURES 577, 1144, 1153

Cleptomyia Carrera, Arq. Zool. São Paulo, vol. 7, p. 124, 1949. Type of genus: *Cleptomyia bacillifera* Carrera, 1949, by original designation.

Small flies with the head constructed much as in *Aphamartania* Schiner. Vertex but little excavated but ocellarium prominent, wide, short, moderately high, with vertical sides and large, anterior ocellus. A few acrostical setae present and short dorsocentral setae differentiated behind the humerus. Wings with all posterior cells open and anal cell closed in the margin; fourth posterior cell greatly narrowed. The abdomen is comparatively robust, moderately long, and not at all tapered, the last segments perhaps slightly wider. Six well developed tergites in the male with the seventh very short. Male terminalia large and conspicuous, fully rotate, the long epandrium fully cleft, and divergent apically, accommodating the proctiger. Gonopod unusually well developed, bulboconvex laterally with hooked, apical process; hypandrium prominent. The special characteristic of these flies lies in the presence of a dense patch of more or less clavate, appressed hairs on the sides of the last two tergites. Length 10 to 12 mm.

Head, lateral aspect: The head is rather long with the face reduced in height and moderately protuberant; it begins to extend immediately beneath the antenna and is recessive just above the epistomal margin. The epistoma is large and slightly oblique. There is no development of the cheek below the eye. The eye is longer on the lower half and distinctly shortened above. The occiput in profile is scarcely evident, except on the lower part of the head, where it slopes very gradually backward from the eye margin and it is most prominent submedially. The lower medial edge of the occiput behind the proboscis is sharp and rectangular. The occiput bears coarse, scattered hairs on the ventral half, weak bristly hairs on the upper half, with three somewhat more stout elements behind the upper eye corners. Proboscis small, strongly compressed and more so at the apex. From dorsal aspect it is distinctly attenuate from the base but from lateral aspect only near the apex, although the base is quite narrowed and followed by a swollen area. Ventrally this basal part bears only 2 small hairs and along the middle 1 pair of long, divergent hairs and the apex has a few, fine, short hairs. Palpus distinctly composed of two segments, cylindrical with the second segment more or less clavate and bearing several slender, black bristles. The apex has a large pore. I am unable to determine whether the basal segment is excavated; most of it is free and there is an attached portion, rather different, proximal in position, which bears 5 long, bristly hairs; it is broader, partly free, and may represent the antepenultimate segment.

Antenna attached a little above the middle of the head. The first segment is twice as long as wide and bears 1 seta above, 2 below; the second segment is slightly longer than the first and bears 2 moderately long, slender, ventral bristles attached in the middle. Third segment somewhat more stouter or wider than the second segment, especially through the middle portion; at the apex it bears a short, stout microsegment, slightly oblique with minute apical spine.

Head, anterior aspect: The width of the head is nearly twice the height and the head is perhaps a little wider on the lower half than on the upper half. The face is wide and approximately one-fourth the total head width. It is distinctly widened below and there are long, deep, ventral creases along each lower eye margin. The eyes descend a considerable distance below the epistoma. The face is finely pollinose without pile and situated above the epistoma, at the point of greatest extension, there is a transverse row of 6 short, stout, pale bristles. Below on each side there is a group of 4 smaller, shorter, bristly hairs or weak bristles. The front is barely wider than the upper face and flat with in front of the ocellus a triangular area marked by creases. Sides of front with 1 or 2 minute hairs. The vertex is shallowly excavated, with sloping sides and the quite large ocellarium of no great height has vertical sides, very large anterior ocellus and bears between the posterior ocelli one pair of short bristles and a pair of smaller, bristly hairs.

Thorax: The thorax is moderately high, the mesonotum is only slightly convex over the middle portion but strongly convex anteriorly in front of the scutellum. It bears fine, appressed, scattered setae anteriorly, a well separated row of 5 or 6 acrostical setae anteriorly and a distinctive, dorsocentral row of short, regularly spaced, pale, appressed, stout setae in each dorsocentral row which do not become longer posteriorly in front of the scutellum. The lateral bristles, however, are stout and pale, rather short, although longer over the wing and on the postalar callosity. The notopleuron bears 3 sets in a straight row, the supraalar region 1, the postalar callosity 1 bristle. Scutellum rather flat, thin, pollinose, without pile and without basal crease except for minute pockets laterally. Metanotal callosity bullose, pollinose only. Pleuron pale pollinose with almost no pile even on the propleuron. The pronotum, however, bears a conspicuous row of 4 pairs of long, regularly spaced, medium stout bristles and the lateral propleuron has a still longer, spikelike bristle. Humerus with setae only. Metapleuron with an oblique row of 3 medium stout bristles, 3 more slender, and anterior to this row 2 or 3 hairs. Postmetacoxal area membranous; the lateral metasternum bears pile; the ventral metasternum pollinose only; prosternum dissociated.

Legs: The legs are comparatively elongate, especially the hind pair. The hind femur is slender at the base, swollen distally above and below, and all the legs bear scattered, fine, appressed setae, mostly wanting on the lower surfaces and quite scanty on the tibia. The hind femur has 4 short, moderately stout bristles ending at the point of greatest swelling; also 7 quite short, stout, ventrolateral bristles; no bristles are at apex. The very slender, elongate tibia, swollen only quite close to the apex, bears short bristles only. It has 4 regularly spaced dorsolateral, 1 basal, 1 dorsomedial, 1 at the middle, and 2 beyond. It also has 5 ventrolateral bristles of which the last 2 are little longer and stouter. Medially there are dense setae only close to the apex, and the apex has 1 lateral and 4 ventral bristles. All the basitarsi are long and slender. Middle femur with 2 quite small posterior or posterodorsal bristles on the apical fourth, 1 posteroventral bristle, 4 even shorter anteroventral bristles. This tibia bears very short bristles, consisting of 3 posterodorsal, 3 anterodorsol, 3 or 4 posteroventral, 4 anteroventral, the last element longer, and 2 longer, stouter, distal ventral bristles, besides 3 long, stout ventral, apical bristles, and 2 weak, dorsal apical, bristly hairs. Anterior legs missing. Claws moderately stout, sharp, rectangularly bent at apex; the pulvillus long; the empodium small, long and bladelike.

Wings: The wings are long, narrowed distally and rather darkly tinged with brown. The marginal cell is widely open, the second submarginal cell is narrow, at base nearly equally divided above and below the third vein. The upper branch of the third vein ends at the wing apex. The posterior branch ends behind the apex at a point not quite equal the ending of the second vein. Marginal cells maximally open except the fourth, which is narrowed to less than half its maximal width. Anal cell open. Alula twice as wide as the costal cell, ambient vein complete. Posterior crossvein almost eliminated, the upper anterior intercalary vein short, the anterior crossvein rectangular, entering the discal cell a little beyond the middle, the third vein forks beyond the end of the discal cell.

Abdomen: The abdomen is comparatively robust with nearly parallel sides but the first and fifth tergites are slightly wider. The surface is pollinose with scattered, appressed, stout setae and no long pile laterally except anteriorly on the sides of the first segment. The first segment is rather long, bears laterally on its posterior margin 3 stout, pale bristles. Sides of the fifth and sixth segments sublaterally with a large patch of appressed, dark reddish clavate bristles. Basal fourth of second segment with a prominent, shallow, transverse fossa. Males with seven tergites, the seventh less than half as long as the sixth and shorter laterally. The sixth is a little more than half as long as the fifth. Male terminalia large, rather high, completely rotate so that the long, wholly cleft, superior forceps, each half of which is subcylindrical and apically pointed, hangs downward like a bowl with a large, short proctiger in between. The gonopod is large, or larger than the forceps, strongly swollen or convex laterally, with a long, dorsomedial, posteriorly toothed process; it bears posteriorly and ventrally several slender bristles and bristly hairs. Hypandrium large and half as long as the forceps.

Distribution: Neotropical: *Cleptomyia bacillifera* Carrera (1949).

Genus *Theromyia* Williston

FIGURES 170, 1142, 1151, 1874, 1908

Cylindrophora Philippi, Verh. zool.-bot. Ges. Wien, vol. 15, p. 704, 1865. Preoccupied Coleoptera, 1851. Type of genus: *Cylindrophora murina* Philippi, 1865, by monotypy.

Lynchia Williston, Psyche. vol. 5, p. 255, 1889. Preoccupied Diptera, 1882.

Myiothera Williston, Psyche, vol. 5, p. 259, 1889. Preoccupied Aves, 1811.

Theromyia Williston, Trans. American Ent. Soc., vol. 18, p. 73, 1891.

Robust flies of medium size or smaller, related to *Aphamartania* Schiner but distinguished by the greatly reduced pulvilli on all legs. Length 12 mm.

Head, lateral aspect: The face is not produced beyond the base of the antenna; it is nearly straight in profile, or slightly convex, the lower portion of the face visible because of the posterior recession of the eye, the upper portion nearly plane with the eye. The eye is convex anteriorly and strongly convex behind, receding both anteroventrally and anterodorsally. The occiput is thick but especially medially; it slopes gradually out to the eye margin, both laterally and dorsally. The pile of the occiput is dense and coarse, longer ventrally and everywhere partaking of the character of weak bristles; it is arranged in 5 or 6 very irregular rows and therefore quite numerous. These elements become stouter and more prominent along the middle of the eye margin and especially stout dorsally and behind the vertex. All are pale and nearly straight, bluntly tipped. The proboscis is relatively short, though it extends well beyond the face; it is robust, gradually swollen towards the base both dorsally and laterally with a prominent dorsomedial ridge and the apical portion is subcylindrical. The proboscis is directed horizontally forward. On the basal half ventrally there are a few, long, stiff hairs, the stiff apical hairs are longer than usual and chiefly confined to the outer ventral fifth and the apex. Palpus clearly of two segments, the first segment is excavated and bears numerous, long, coarse, ventral hairs; the second segment is robust, attenuate basally and apically and microporate at the apex without apical bristles but with numerous, coarse bristles on all surfaces. The second palpal segment is attached a short distance dorsally from the apex of the first segment.

The antenna is attached at the middle of the head but is of only moderate length; the first two segments are quite short, beadlike, each somewhat swollen in the middle. The third segment is elongate; not quite as wide basally as the second segment and only slightly narrowed or tapered distally. It is obliquely truncate apically and carries two microsegments; the first microsegment is obliquely truncate ventrally and the second microsegment is longer and robust. The end microsegment bears a distinct, short, dorsal, apical spine. The pile of the first antennal segment is composed of slender bristles, unusually long dorsally and laterally but still longer ventrally where they are longer than the combined length of the first two segments. Second segment dorsally with 6 or 7 bristles as long as those in a similar position on the first segment; the ventral aspect of this segment has 3 long, stiff bristles and some more slender, bristly hairs which are as long as the third segment excluding its microsegments. Third segment with 2 or 3 short, stiff bristles dorsally.

Head, anterior aspect: The face below the antenna is one-fourth the head width and distinctly divergent below. Subepistomal area rather small and horizontal, concave and bare. The face is micropubescent and apilose on the upper half; on the lower half it bears an extremely dense, tectiform mat of slender, opaque bristles which are directed obliquely downward; the longer and medial elements reach to the tip of the proboscis. Front long and wide, flat and pollinose, with a submedial, elongate patch of stiff, somewhat appressed bristles; the vertex is slightly but distinctly narrower than the front and moderately excavated on each side. The eyes rise distinctly above the vertex. Ocellarium exceptionally large and broad with vertical sides; all the ocelli are large, the anterior ocellus exceptionally large. Between the ocelli on either side is a patch of 8 stiff, pale bristles and a similar patch of 5 or 6 on each side behind the ocelli. Anterior eye facets strongly enlarged and zoned.

Thorax: The thorax is short, appressed micropubescent. Pile of mesonotum dense but short, bristly and curled backward; it is distinctly longer across the anterior margin and laterally; there is present a distinct band of acrostical elements in 4 rows anteriorly, 2 of these rows are over the middle area. The dorsocentral elements are differentiated only a comparatively short distance in front of the suture, where there are 3 pairs; behind the suture are 3 or 4 pairs of longer bristles. Humerus short with abundant, bristly pile and numerous, longer bristles. The following complement of bristles is present in the type of genus: 14 humeral, a cluster of 6 posthumeral, a diagonal row of 3 exceptionally stout notopleural, a longitudinal row of 3 or 4 supraalar, 3 or 4 long, very stout postalar bristles, and 4 pairs of scutellar bristles. Scutellum pubescent, a little thickened and slightly convex. Propleuron with exceptionally dense, long, bushy pile including the dorsal portion; bristles absent. Anterior sternopleuron with a small tuft of pile; posterior border of the mesopleuron with numerous, stiff hairs, the upper sternopleuron with only 2 or 3; pteropleuron and hypopleuron apilose; metapleuron with a wide, vertical band of many, long, slender, bristly hairs; metanotal slopes micropubescent only; lateral metasternum densely pilose posteriorly; the ventral metasternum is narrow but heavily chitinized, polished, with a few long hairs from the membranous area immediately anterior to it; it appears to be separated from the postcoxal area by a deep transverse depression. Postcoxal area membranous and extensive; tegula with several stiff setae.

Legs: All the femora are distinctly swollen; the anterior and middle pairs are swollen except close to the apex, the hind pair is plane ventrally with all of the swelling dorsal, leaving the base and the apex slightly narrowed. The pile of the femora is coarse, flat appressed and setate throughout, except ventrally. The ventral surface of the hind femur has a wide, conspicuous tuft of long, but more or less appressed, dense, coarse pile basoventrally which extends to the middle of this femur or a little beyond. The following complement of stout, mostly long bristles present: 5 lateral and 2 dorsolateral on the apical fourth, 2 dorsal somewhat closer to the apex and a corresponding dorsomedial, 2 or 3 weak, slender ventrolateral in the middle. The trochanter has 6 or 8 exceptionally stout bristles, the coxa with stiff hairs. Hind tibia somewhat dilated at the apex and a little narrowed subapically with 4 long, quite stout, dorsomedial, 3 similar dorsolateral on the basal half, and 6 ventrolateral elements distributed over the middle half; all these elements are oblique, the first 2 smaller and paler, the last 4 black and so stout as to be spinelike and tuberculate. A brush of ventral setae is confined to the outer fourth, more extensive medially. Apex with 2 spinelike, ventral bristles, and 1 lateral, 2 weak medial, and 1 weak dorsal bristles. Basitarsus nearly as long as the succeeding three segments.

Middle femur with 1 slender bristle anterodorsally near the apex and 2 dorsal and 2 posterodorsal, both stout, on the apical third. This tibia has 3 anterodorsal, 4 posterodorsal, 7 posteroventral bristles short and very stout, and 3 long, very stout ventral bristles. Anterior femur with 3 stout bristles anteroventrally and clustered in the middle; 2 stout, posterodorsal elements on the outer third; this tibia has 6 or 7 anterodorsal, 3 posterodorsal, 6 posteroventral, and 3 very stout ventral bristles. The apex of the anterior tibia bears a stout, curved spine and the basitarsus has a patch of denticles. All tarsi end in stout, long, sharp, gently curved claws, a long, bladelike, unswollen empodium, and very short pulvilli reduced to one-third or one-fourth the length of the claw.

Wings: The marginal cell open by a distance somewhat less than its width; anterior branch of third vein ends above the wing apex; posterior branch ends a short distance behind. All posterior cells are widely open, except the fourth which is greatly narrowed and is open by a fourth its maximum width. Anal cell closed in the margin. The second basal cell ends in two veins; alula large; ambient vein complete.

Abdomen: The abdomen is short and robust, basally as wide as the mesonotum. The abdomen is very short pilose across the middle and has some pollinose bands; it is a little tapered from the base; the lateral pile is a little longer, sides of the first tergite have 6 or 7 bristly hairs and some additional, long pile. The male has seven tergites, the fifth tergite a little more than half as long as the fourth, the sixth and seventh tergites each are only half as long as the fifth and in consequence both are quite short. Male terminalia in the type of genus is extremely large, elongate dorsoventrally and clublike, and half-rotate.

Distribution: Neotropical. *Theromyia murina* Philippi (1865) [=*calopyga* Schiner (1868)].

Genus *Aphamartania* Schiner

FIGURES 174, 183, 371, 554, 561, 1143, 1145, 1152, 1154, 1758, 1856, 1857, 1951

Aphamartania Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 671, 1866. Type of genus: *Aphamartania frauenfeldi* Schiner, 1866, by original designation.

Medium size, robust flies with the abdomen at the base as wide as the mesonotum, moderately tapered beyond and characteristically with large, conspicuous male terminalia. The eye is distinctly wider on the ventral half, the face rather strongly divergent below. The proboscis extends at least as far as the mystax and is directed horizontally forward. There is a thin row of acrostical setae or bristles distinctly differentiated. Length 11 mm.

Head, lateral aspect: The face is gently produced and short beneath the antenna, gradually rising until upon the lower third it is gently convex and rather prominent. The eye is distinctly longer on the lower half, being somewhat narrow above; it is convex posteriorly, though nearly plane for about a third its height on the area which lies at and just above the middle. The occiput is short throughout the entire head and follows the curvature of the eye. Pile of the occiput is rather dense and fine on the ventral half but comparatively short above; the upper half bears numerous, weak, slightly curved, pale bristles. The proboscis is stout, plane on the ventral surface, gently arched to a point from the dorsal aspect, with a moderately high medial ridge which extends to within a short distance of the apex. The proboscis is directed horizontally forward and bears, besides other long hairs on the basal half, ventrally at the middle, 2 or 3 long, bristly hairs which are directed obliquely forward and outward. Palpus clearly of two segments, the first excavated, the second cylindrical, slightly swollen through the middle, and without apical pore. Antenna attached just above the middle of the head, moderately elongate, the first segment as long or slightly longer than the second, the third segment together with its microsegment is 1½ times as long as the combined length of the first two segments. The third segment is slightly widened through the middle and narrowed at the obliquely truncate apex. It bears a moderately long, basally stout spine.

Head, anterior aspect: The subepistomal area is large, oblique, concave, bare. The face is pubescent on the upper half, shining below, apilose, with the lower half densely beset with numerous, pale yellow, bristly hairs. The face is strongly divergent below. The front is wide, flat, with a V-shaped depression below the ocelli. Vertex rather moderately excavated, with slanting sides, but the ocellarium is large, wide, high, with vertical sides, with very large ocelli and 2 pairs of long, stout bristles, with 2 other shorter bristly hairs, besides one long and one slender bristle behind the ocelli. The front has at most 1 or 2 short hairs but several curled, bristly hairs laterally to each side of the front ocellus. Anterior ocellus greatly enlarged and widened; anterior eye facets greatly enlarged.

Thorax: The mesonotum and pleuron pollinose, the pile of the mesonotum is moderately abundant and bristly. The anterior pile arises from small tubercles; there is a distinct row of short, fine acrostical elements present anteriorly, with a wide space on either side. Dorsocentral elements differentiated only on the posterior half of the mesonotum; they are short and form a double row; immediately in front of the scutellum they become longer and stouter and constitute a cluster of 5 on each side. Humerus with 5 or 6 long bristles. Lateral mesonotal bristles pale, long and quite stout: 3 notopleural, 1 supraalar with other long bristly hairs, 2 postalar, and 3 pairs of scutellar bristles. Scutellum convex on the outer half, the basal half a little flattened, the whole pubescent. Propleuron with dense, long pile and no bristles. Mesopleuron with only a few, short, stiff hairs posterodorsally and along the posterior margin. Sternopleuron with pile only anteriorly; pteropleuron and hypopleuron apilose; metapleuron convex, protuberant, with a dense band of very long bristly hairs; metanotal slopes strongly bullose and micropubescent only. Lateral metasternum densely pilose posteriorly, separated from the anterior portion by rectangular crease; ventral metasternum narrow, chitinized, pilose, behind it the first sternite is narrow, chitinized, apilose and separated by a membrane from the pubescent metasternum. Postmetacoxal area membranous; tegula with 2 or 3 setae; prosternum dissociated.

Legs: The anterior and middle femora are quite stout and a little thickened, the hind femur rather more strongly thickened, narrowed only near the base and near the apex. All dorsal and ventral pile is appressed and setate. On the hind femur these stout bristles are present: 6 ventrolateral with 2 additional elements at the middle and above; also laterally there are 3 or 4 small, short bristles on the outer half, and 6 stout bristles a little above the middle laterally with 1 or 2 bristles dorsolaterally on the outer third. Also there is 1 dorsolateral subapical bristle, 1 dorsomedial, and 12 bristles distributed medially and broadly along the middle. The hind tibia has very stout, short, oblique bristles, all yellow; 4 dorsomedial, 5 ventromedial, 4 dorsolateral, and 4 ventrolateral elements. Middle femur with 3 anteroventral bristles near the middle, a pair subapically with another slightly behind. The middle tibia has bristles similar to the posterior tibia but most of them are black: only 1 strong, anterodorsal bristle at the middle, 7 posterodorsal, 6 posteroventral, 3 longer, posteroventral below these, and 5 anteroventral bristles. Anterior femur with 2 or 3 short bristles on the outer fourth posteriorly and also 2 or 3 ventrally along the middle; this tibia has 3 or 4 short, weak, anterodorsal, 6 well developed posterodorsal, a double row of posteroventral, the upper set containing 6 or 7 shorter bristles, the ventral set with 4 long, stout bristles. Apex with a moderately stout, apically attenuate, strongly bent sigmoid spine arising from a short, inconspicuous, basal protuberance. Basitarsus with no basal swelling, but with a small hemicircular patch of 5 or 6 strong, short, stout denticles. Claws strongly curved at the apex, moderately sharp; pulvilli long, spatulate; empodium long and bristlelike.

Wings: The wings are broad, marginal cell widely open but slightly narrowed at the apex. All the posterior cells are widely open. The fourth is slightly narrowed and anal cell open. The second basal cell ends in two veins. The anterior crossvein enters the discal cell at the middle. The anterior branch of the third vein curves forward distinctly and shortly before it ends, ending above the wing apex. Alula large, ambient vein complete.

Abdomen: The pile of the abdomen is short and comparatively scanty, so that these flies have a rather bare aspect. In the male there are seven tergites, the seventh only a fourth the length of the sixth dorsally, but at least half or more the length of the sixth segment laterally. Females with eight well developed tergites. Male terminalia exceptionally large, club-shaped, prominent, and rotate one-half. The hypandrium is long and undivided; the gonopod has a strong, toothed, terminal spur. Female with acanthophorites and 5 pairs of long, slender, sharp spines; there are no accessory bristles. Ventral plate deeply sulcate and medially sunken and troughlike.

Distribution: Neotropical: *Aphamartania breviventris* Macquart (1848); *digna* Pritchard (1941); *frauenfeldi* Schiner (1866) [=*panamensis* Curran (1931)]; *maculipennis* Macquart (1838); *marga* Pritchard (1941); *nana* Pritchard (1941); *pritchardi* Carrera (1943).

Genus *Paraphamartania* Engel

FIGURES 176, 563, 1140, 1149

Paraphamartania Engel, *in* Lindner, Die Fliegen der palaearktischen region, vol. 4, pt. 24, p. 437, p. 440, 1930. Type of genus: *Aphamartania syriaca* Schiner, 1867, by original designation.

Small flies with robust, cylindroid abdomen which is but little tapered. They are dark colored with greyish white or yellowish grey pollen and very short pile. All the posterior cells widely open, the face short but strongly convex due to the fact that it retreats strongly below. The proboscis is small and subcylindrical, directed obliquely forward and only a little longer than the face. Face with fine pile and a few stiff hairs ventrally, all of it pale. Anterior dorsocentral bristles of mesonotum exaggerated and quite long. Length 6 to 8 mm.

Head, lateral aspect: The face is moderately produced but of uniform length, or slightly longer below; the whole facial profile is greatly rounded and convex, of nearly the same curvature as the eye; the epistoma is small, nearly horizontal, concave and bare. The eye is unusually long and as a result exceptionally convex anteriorly. The occiput is exceptionally prominent but chiefly swollen medially and it gently slopes down to the eye margin, more strongly sloping near the vertex; it is much more prominent below due to the recession of the eye. Pile of occiput comparatively short and quite fine; moderately abundant below, it is scanty in the middle, and is replaced on the upper fourth by 6 short, straight, pale, stout bristles. Proboscis short, extended obliquely forward and extended well beyond the retreating epistomal margin by fully half its length; however, it barely extends beyond the anterior level of the face. It has a high, medial ridge extending from the base nearly to the apex; apex bluntly pointed, tapered from above and below and with a few stiff hairs; the ventral surface before the middle has 7 or 8 long, fine hairs on each side. Palpus small, clearly of two segments; the first is rather short, excavated and bears 9 rather long but pale, slender, ventral hairs and 2 or 3 lateral and apical hairs; second segment as long as the first, cylindrical and slightly tapered toward the apex with similar pale, stiff hairs and without pore. The antenna is attached a little below the upper third of the head; the first segment is a little longer than the second, the second is about as wide as long and both with fine pile ventrally and laterally, with shorter, similar pile dorsally. The second segment has a single long, stout, ventrolateral bristle. Third segment a little swollen from base to the outer fourth, narrowed to apex, and with two microsegments, the first of which is quite short; apex with a spine.

Head, anterior aspect: The face below the antenna is one-third the head width and slightly wider below except at the epistoma or bottom of eye where it is a little narrowed. The mystax may be composed of about 10 moderately stout, long, pale bristles on each side of the lower half of face and of these at least 4 elements may be situated along the sides of the epistoma; upper face with 12 to 15 fine hairs, only moderately long. In others the mystax may consist of long, quite stiff hairs, relatively slender and the whole face, except narrowly along the lateral margin with comparatively abundant, long, fine pile. Front moderately long and also as wide as the upper face; it bears a tuft of fine pile laterally below the ocelli. The ocellarium is rather large but not very high, its sides vertical; it bears large ocelli and 3 pairs of comparatively long, pale, stout bristles; there are 1 pair between, 1 pair in front, and another pair behind the posterior ocelli.

Thorax: The mesonotum has a single row of sparse, long, curled, brownish white acrostical elements with a single row of extremely long, unusually stout, brownish yellow, backwardly curved, dorsocentral bristles; the anterior apex of the row may have an extra bristle. All the lateral bristles are quite stout, long, brownish yellow, and consist of 3 humeral, 3 notopleural, 2 supraalar, 1 postalar, and 2 pairs of bristles on the scutellar margin. The dorsocentral bristles begin opposite the humerus, and in front of the suture are 3 pairs of exceptionally long, strong bristles which are translucent yellowish white. The scutellum is rather strongly flattened but the margin slightly convex, the whole disc micropubescent. Humerus with long pile; propleuron without bristles, the pile long and fine; mesopleuron, pteropleuron, and hypopleuron apilose. The sternopleuron has only 2 or 3 hairs anteriorly. Whole thorax minutely appressed pubescent, metapleuron with a single vertical row of 5 or 6 bristles. Metanotal slopes without pile. Lateral metasternum for the most of its length with numerous, fine hairs; ventral metasternum narrow, chitinized, isolated, with a few long, fine hairs. First sternite apilose; postmetacoxal area membranous and pollinose; lateral metasternum micropubescent only. Tegula pubescent only.

Legs: The femur moderately stout, with dense, short, flat appressed yellow pile and with 3 stout, brownish, dorsolateral bristles; it also has a pair of longer, stout, dorsal subapical bristles. Hind tibia with moderately long, very stout, greyish brown to yellowish brown, slightly oblique bristles. It has 2 lateral bristles on the basal half, 3 posteroventral bristles situated at the middle, and 2 on the outer fourth, also 4 dorsal bristles. Middle femur with a stout, anterior bristle on the basal third and a dorsoapical pair and a weak lateral apical bristle. Middle tibia with 2 moderate, rather long, dorsal and 2 or 3 shorter, dorsal bristles, besides 5 quite long, oblique, stout, dorsal bristles and a double, ventral row of shorter, divergent bristles. Anterior femur with only 1 bristle at the apex posteriorly. Anterior tibia with brownish yellow bristles, 4 rather short, stout, dorsal, 4 posterodorsal, 4 posterior, and 4 ventral. Apex with a conspicuous, strongly curved, stout, posteroventral, black spine; basitarsus not modified. Anterior basitarsus with 1 long posterobasal, 2 long posteroapical, and 1 quite long posteroventral brownish yellow bristle. Claws long, but little curved, except near the apex, and moderately sharp. Pulvilli large; empodium long and strongly stiffened near the base.

Wings: The wings are slightly narrowed. Marginal cell widely open; the second submarginal cell relatively narrow at the wing margin. All posterior cells are widely open and the medial crossvein is barely longer than the upper section of the anterior intercalary vein. The middle end vein of the second basal cell is reduced in length and the anal cell is closed and stalked. Alula small and ambient vein complete.

Abdomen: The basal tergite is as wide as the mesonotum but narrowed a little posteriorly; remainder of abdomen with nearly parallel sides, robust but strongly cylindroid; the abdomen is convex but slightly flattened across the middles of the first 2 or 3 tergites. First tergite a little more than half as long as the second; laterally it bears a cluster of 6 or 7 moderately long, rather stout, yellow bristles. All other abdominal pile comparatively short, flat appressed, fine and yellowish. Males with seven tergites, the last two reduced, the seventh from a fifth to a sixth as long as the preceding tergite, and the sixth only two-thirds as long as the fifth; second tergite a little constricted dorsally and narrowly along the base but not laterally. Females with eight tergites of gradually decreasing length; the eighth is one-third the length of the seventh. Female terminalia quite short, in profile but little evident, with on either side a row of blunt, brownish spines.

Distribution. Palaearctic: *Paraphamartania syriaca* Schiner (1867).

Genus *Annamyia* Pritchard

FIGURES 172, 562, 1146, 1155, 1582, 1583, 1700, 1836

Annamyia Pritchard, Proc. Ent. Soc. Washington, vol. 43, p. 131, 1941. Type of genus: *Annamyia maren* Pritchard, 1941, by original designation.

These flies are of medium size and related to *Aphamartania* Schiner and characterized by the plane face, which is moderately but gradually produced below with strong bristles composing the mystax. The anterior tarsus is unusually long, twice as long as the anterior tibia. These characters together with the divergent face also separate the genus from *Paraphamartania* Engel. All three genera in the males have an enlarged terminalia with swollen bulbous hypandrium. Length 13 mm.

Head, lateral aspect: The face is moderately produced on the lower part and rises gently from the base of the antenna, with the surface nearly plane; it is slightly recessive on the lowest sixth, just above the epistoma. The eye is high and only shallowly convex anteriorly and posteriorly, its length a little greater upon the ventral half. The occiput is not strongly developed but is thicker below; it follows the curvature of the eye and is quite reduced dorsally. The pile of the occiput is coarse and only moderately abundant along the middle and lower portion; the middle pile is somewhat matted or appressed and directed conspicuously downward; the dorsal pile is fine and short anteriorly, longer posteriorly and medially; bristles are absent. The proboscis extends as far as the antenna and is directed forward; it is attenuate with bluntly rounded apex and a few stiff, apical hairs. Palpus of two segments, the first excavated, the second longer, cylindrical, attached to one side of the apex of the first segment; the end segment is tapered with blunt apex and bears bristly pile on all sides as well as the apex and is not porate. The antenna is attached at the middle of the head and is moderately elongate; the first and second segments are nearly equal in length and longer than high. The third segment is, with microsegments combined, a little more than 1½ times the length of the first two segments; this segment is of nearly uniform thickness with annulate base fully as wide as the middle of the segment; at the end it bears two distinct microsegments, the first quite short, the second long, stout, sharply attenuate with bristle at tip. The third segment is obliquely truncate at the end which results in the microsegments being directed downward. The first segment bears several long, bristly hairs on all sides except medially; second segment with 1 long, stout bristle ventrally, 3 long bristly hairs, and 6 or more bristly setae.

Head, anterior aspect: The face below the antenna is about one-fourth of the head width. The subepistomal area is large and oblique. The face is coarsely micropubescent with the short cheeks bare. Face pile is composed of 10 to 12 bristly, white hairs on each side, and below near the subepistoma is a lateral patch of 6 or 7 more closely set similar hairs. There a transverse row of 5 stout, black bristles crosses the lowest part of the face and extends out to the apex of the proboscis; above these is a curved row of 5 similar bristles, a little less stout and not as long. The front is wide, flat, pollinose, and almost without pile or bristles; on each side near the anterior ocellus are 2 slender, stiff, black hairs. The vertex is deeply excavated, chiefly because of the dorsal extension of the eye; the ocellarium is large, high and conspicuous, with vertical sides, it bears 3 pairs of long, slender, bristly hairs in the middle. The anterior ocellus exceptionally enlarged. Anterior eye facets strongly enlarged.

Thorax: The mesonotum and pleuron are covered with fine micropubescence. Mesonotal pile is scanty, coarse, bristly and flat appressed; there is a distinct acrostical row of short, appressed pile with a wide, bare space on each side; dorsocentral elements are not differentiated from the mediohumeral pile and not in evidence posteriorly except for a single, stout bristle on each side in front of the scutellum. The lateral bristles are stout, of medium length, and black; they consist of 2 especially stout notopleural, 2 weaker postsupraalar, 1 postalar, and 1 pair of marginal bristles on the scutellum. The scutellum is quite thick, convex, with a deep basal crease, pollinose, and apilose. Propleuron with scattered, long, fine pile; pronotum with similar pile, exceptionally long, and bristles absent; lateral pronotum with long, fine pile only. On the mesopleuron the pile is restricted to the posterior half; pteropleuron and hypopleuron apilose; metapleuron exceptionally bullose and swollen from its posterior aspect and with a wide band of numerous, long, coarse hairs. Lateral slopes of the metanotum are micropubescent only; tegula with a few minute setae. The anterior basalare has a distinct, long, narrow ventral, chitinized wedge extending down between the mesopleuron and pteropleuron. Lateral and ventral metasternum with pile; postmetacoxal area membranous.

Legs: The hind femur and tibia are elongate; this femur is slightly wider on the outer half, and gently tapered towards the base; the tibia is slender, swollen only quite close to the apex, and with a brush of ventral setae only on the outer fifth. The coxae are pubescent, the remainder of the legs shining. The femora bear ventrally scanty, scattered pile which is a little more abundant and subappressed on the dorsal half. The hind femur has no bristles. The hind tibia bears 4 dorsomedial and 4 dorsolateral short, moderately stout, black bristles, in each group of which 3 of the bristles are on the basal half; it also bears 2 ventrolateral bristles. Middle femur with 1 well developed posterodorsal, 5 posteroventral, and 3 anteroventral bristles. Anterior femur with 1 yellowish posterodorsal subapical bristle, its tibia with 8 minute, short, anterodorsal, 6 longer posterodorsal, 5 still longer posteroventral bristles. The apex of the anterior tibia bears a basally stout, bluntly pointed, slightly curved, but not twisted spine which arises from a low protuberance. The basitarsus has a slightly raised patch of denticles. The anterior tarsus is exceptionally long, nearly or quite twice as long as the tibia; other tarsi not unusually lengthened. Claws sharp; pulvilli spatulate and well developed; empodium long, bladelike and swollen at the immediate base.

Wings: The wings are tinged with brown and with hyaline streaks in the first basal and marginal cells. Marginal cell widely open. The anterior branch of the third vein arises barely beyond the end of the discal cell; the anterior crossvein is rectangular and enters the discal cell beyond the middle; lower end vein of the discal cell is twice as long as the upper end vein and drawn obliquely backward. The first posterior cell is widely open; fourth posterior cell open but greatly narrowed; anal cell narrowly open. The second basal cell ends in two veins; alula twice as wide as the costal cell; ambient vein complete.

Abdomen: The abdomen is robust, cylindroid, with parallel sides but not as wide as the mesonotum. The tergites tend to be a little flattened across the middle. Males with seven tergites, the seventh is three-fifths as long as the sixth; the sixth is shorter than the fifth. Pile of abdomen is very fine, short and scanty; the posterior margins have a whitish pollinose fascia which expands laterally into large triangles. The first two segments laterally with moderately abundant, fine, long pile; no bristles present. The male terminalia are swollen and exceptionally large, but not rotate. The epandrium is undivided, with large flat, triangular dorsal plate, the ventral element large, bulbous and swollen. Female unknown.

Distribution: Neotropical: *Annamyia maren* Pritchard (1941).

Genus *Hodophylax* James

Figures 152, 556, 1147, 1156, 1699, 1956

Hodophylax James, Amer. Mus. Novitates, no. 596, p. 1, 1933. Type of genus: *Hodophylax aridus* James, 1933, by original designation.

Small, quite stout flies of sparse, short, appressed pile and stout legs. Anterior tibia with a weak, curved, spinous bristle. Pulvilli absent; empodium reduced. Length 7 mm.

Head, lateral aspect: The face in profile is quite short, slightly more prominent below. The eyes are distinctly narrower on the upper half without recession, either anteriorly or posteriorly. The occiput is prominent on the lower half of the head, obliterated near the bottom of the eye and gradually reduced in thickness on the upper portion of the head. Occipital bristles begin at the middle of the head and consist of 7 or 8 pairs of weak, short bristles; occipital pile quite scanty, chiefly restricted to the lower half of the occiput with only a few hairs on the upper portion, except immediately behind the ocelli where they are more numerous. The proboscis is extremely short and does not project beyond the face. It is chiefly directed forward and only slightly oblique. It is rather strongly compressed laterally, robust, with bluntly rounded apex; it bears some fine pile apically and on the ventral margin of the outer half; the basal half is without pile. Palpus small, short, of two segments. First segment excavated, second somewhat swollen, not porate, but with a few fine hairs.

The antenna is attached just above the middle of the head; it is moderately long and slender, first two segments of nearly equal length, second slightly wider apically. The third segment is a little more than twice as long as the first two segments combined, slightly less wide than the first segment; it is cylindrical, of uniform width to the middle then very slightly narrowed to the apex. The third segment bears a single, rather long microsegment which carries a minute apical spine and is held in a slightly oblique position. First segment with 1 single stiff hair dorsally and 2 ventrally; second segment with 2 minute setae dorsally and with 1 quite long, moderately stout bristle ventrally which is considerably longer than the first 2 segments combined.

Head, anterior aspect: The face below the antenna is two-sevenths the head width and very slightly divergent below. Subepistomal area is moderately large but distinctly horizontal, shallowly concave and bare. Face densely micropubescent with a few scattered, curled hairs laterally and beneath the antenna. On the lower margin transversely are 8 to 10 pairs of rather short, stout, pale bristles. Front slightly divergent, the vertex scarcely convergent. The front bears along the eye margin a few stiff, curled hairs and a few in the middle of each side and is otherwise densely micropubescent. Vertex only slightly excavated, the ocellarium large but low, the ocelli large, the tubercle bearing 1 to 2 pairs of slender bristles, and with 1 or 2 stiff hairs behind the ocelli. The eyes are strongly flattened in front, the mediocentral facets greatly enlarged.

Thorax: The whole thorax except for the posterior sternopleuron, the lower pteropleuron and the middle of the postalar region is densely appressed micropubescent. Pile of thorax moderately long, but quite flat appressed. Acrostical and dorsocentral bristles weakly differentiated with 4 somewhat longer, stouter pairs of bristles posteriorly. Humerus pubescent only. There are stout but rather short bristles present as follows: 2 notopleural, 3 to 4 supraalar, 2 postalar, 2 pairs on the scutellum. Scutellar disc shallowly convex, densely pubescent, without pile. Propleuron with stiff, coarse, bristly pile. Anterior collar with long pile only. The upper posterior section laterally has a dense, appressed mat of posteriorly directed, long, bristly hair. Upper anterior mesopleuron with stiff, ap- without pile. Metapleuron with a vertical band of nearly 20 long, rather stiff bristles. Metanotal slopes pressed, bristly setae. Pteropleuron and hypopleuron micropubescent only. Metasternal slopes with fine pile. Metasternum bare, postmetacoxal area membranous. Tegula pubescent only. Prosternum dissociated.

Legs: The legs are stout, the pile is rather long, coarse, flat appressed, almost bristly setate in appearance. Pile is almost wholly absent on the medial and ventral surfaces of the hind femur, the ventral and anterior surfaces of the other femora. Hind femur with 2 short, weak, dorsoapical and 7 short, weak dorsolateral bristles. Hind tibia unusually stout and bearing longer, stouter bristles, 7 dorsal, 4 dorsolateral which are quite short, 4 lateral with an additional lateral row lower down containing 4 or 5 bristles, and a ventrolateral row of 4 longer bristles. Apex with 1 dorsolateral, 2 lateral, 5 ventral bristles. Middle femur with 2 weak bristles dorsally at the apex, 1 laterally and 1 slightly stouter bristle lateral and subapical. Middle tibia has 5 anterior, 3 minute dorsal, 8 longer, stout, oblique, posterior bristles, and 3 long, ventral bristles. Anterior femur with 2 small, weak bristles posteroapically; the tibia with 4 short, weak, dorsal bristles, 6 short anterior, 7 longer posterior, and 3 still longer posteroventral bristles. The anterior tibia has a weak, strongly curved, apical spine. Tarsi end in long, slender claws which are gently arched, curved and sharp. Pulvilli absent; anterior empodium weak and reduced to a third of the length of the claw; posterior empodium two-thirds of the length of the claw.

Wings: The marginal cell is widely open, the second submarginal cell originates at the end of the discal cell, the anterior branch of the third vein ends a little above the wing apex, posterior branch ends a short distance past the wing apex. First posterior cell fully open, fourth posterior cell slightly narrowed to two-thirds of its maximum width; anal cell closed in the margin; second basal cell ends in three veins; alula large; ambient vein complete.

Abdomen: The abdomen is broad and robust, as wide as the thorax and very slightly narrowed posteriorly with extensive lateral and posterior pollinose areas upon the tergites. The abdomen is thick or high laterally, the sides are strongly rolled vertically downward. Males with 6 well developed tergites; the seventh and eighth are present but each is quite short. There are eight tergites present in the female, the sixth a third as long as the fifth, the seventh half as long as the sixth, the eighth is short or virtually concealed by the seventh. Bristles confined to the first tergite where there are 4 short, stout pairs. Pile of abdomen is very short, appressed and setate, slightly longer and appressed laterally. Male terminalia quite short and obtuse. The short epandrium is divided medially to the base, its short, lateral lobes, the equivalent of the superior forceps, are rather divergent. The gonopod is small and short with a small apical tooth or sharp process. Proctiger is short, hypandrium greatly reduced or absent; cavity of the genitalia is open below. Female terminalia is short, acanthophorites each with 4 spines. Lateral processes with 1 or 2 stout, spinous bristles.

Distribution: Nearctic: *Hodophylax aridus* James (1933); *basingeri* Pritchard (1938).

Genus *Aspidopyga* Carrera

FIGURES 479, 1141, 1150, 1725, 1729

Aspidopyga Carrera, Arq. Zool. São Paulo, vol. 7, p. 132, 1949. Type of genus: *Aspidopyga cophuroides* Carrera, 1949, by original designation.

Flies of medium size or larger, pollinose with reduced pile and a very short face, a curved spine on the protibia, marginally wide, third posterior cell and a curious, flared, flattened, elongated lobe on the extended superior forceps. These flies are evidently related to *Cophura* Osten Sacken but are much larger, with somewhat different venation, antenna, and terminalia. Length 14 mm.

Head, lateral aspect: The head is of medium length, the face extremely short, of equal length above and below, gently convex and following the eye margin. The eye is slightly longer and more prominent below. The occiput is moderately developed along the lower third of the head, but not at the bottom of the eyes, where it is retreating and it is not at all visible on the upper third. The pile is abundant and fine medially on the lower half of the occiput; bristles begin a little below the middle of the head, and consist of some 16 pairs, also 2 stouter pairs deeply placed behind the vertex. Proboscis of medium length, extended only a little beyond the face, cylindrical; dorsally the apex is obliquely truncate. It has rather numerous, coarse hairs ventrally near the apex but only 2 or 3 long hairs ventrally near the middle. Palpus prominent, clearly of 2 segments, the first segment hemicylindrical and excavated, the second cylindrical, with 5 or 6 apical bristles and a few slender bristles on all sides; basal segment with long, stiff hairs. The antenna is quite as long as the maximum head width. The first two segments are stout, parallel-sided, subequal, and bear unusually stout, long bristles ventrally, 2 on the first and 1 on the second, besides shorter bristly hair laterally and dorsally. Third segment is slender, a little tapered on the outer third, with a short truncate microsegment.

Head, anterior aspect: The head is wider than the thorax, the eyes rather strongly flattened, the anterior facets exceptionally enlarged. The face is moderately wide; both face and front have nearly parallel sides, at most slightly narrowed near the antenna; both densely micropubescent. Face with 6 or 8 scattered fine pale hairs on the upper third, some longer hairs more bristly across the middle, becoming still longer and a little stouter on the ventral third and with a row of 3 or 4 pairs of long, moderately stout bristles above the epistoma. Subepistoma rather small, concave and almost horizontal. The front is flat, without pile. There are 2 or 3 fine hairs laterally opposite the ocelli; vertex pollinose, rather strongly excavated; the ocellarium set well forward, large and with slanting sides; anterior ocellus vertical and enlarged. A pair of slender bristles between the ocelli and 2 pairs of stout bristles between the posterior ocelli.

Thorax: The thorax is everywhere pollinose, most of the pollen light yellowish brown, some of it blackish. The pile is greatly reduced, scanty, mostly setate. A double row of scattered acrostical bristles rather widely separated; anteriorly between them on the midline are 2 or 3 hairs. Dorsocentral bristles become strongly developed opposite the posterior margin of the humerus and are still longer posteriorly, where there are 8 in each row. Humerus with 10 or more short bristles and bristly pile. Lateral bristles long and moderately stout with the following complement of bristles: 2 notopleural, 3 supraalar, 3 postalar, and 1 scutellar pair. Scutellum thick, convex, pollinose only. Pleuron mostly bare, with fine, scattered hairs on the pronotum and the cervical sclerite and dense, bristly, scattered pile on the lateral prothorax. The prosternum is dissociated. All remaining pleuron without pile, except the metapleuron which has a conspicuous, vertical, double and partly triple band of long bristles containing more than 20 elements. Lateral and ventral metasternum with pile; postmetacoxal area membranous.

Legs: The femora are distinctly stout without being swollen, though the hind femur may be a little dilated distally and is distinctly lengthened. Legs everywhere shining, with rather scanty and reduced pile, of coarse, setate, bristly and semiappressed character. Hind femur with 4 lateral bristles along the middle, 2 dorsolateral on the apical fourth, 1 dorsomedial near the apex, 3 weaker medial bristles closer to the apex, and 3 weak dorsolateral bristles near the apex. Middle femur with 3 weak anterior bristles, 2 or 3 near the apex dorsally on each side. The anterior femur with 1 bristle on the basal third anteriorly, 3 at the apex anteriorly, and 2 posterodorsally on the outer fourth. The posterior tibia with 5 or 6 weak dorsomedial bristles, 5 well developed dorsolateral, and 7 ventrolateral bristles; apex with 8 bristles. Middle tibia with prominent, long, anterodorsal and posteroventral bristles, 5 in each row, and 6 to 10 short bristles in a dorsal and posterior row. On the anterior pair are some 10 short bristles anterodorsally and 5 long posteroventral bristles, a like number of shorter posterior bristles, and some very long bristly hairs ventrally. Apex without process but with distinct, curved, not twisted spine. Basitarsus without denticles and with only fine pile. Claws sharp; pulvilli well developed, wide apically; empodium present.

Wings: The wings are tinged with brown, elongate, the marginal cell is widely open. The anterior branch of the third vein ends above the wing apex, the fork of the third vein begins far beyond the posterior cross vein. All posterior cells are widely open, the fourth and second only slightly narrowed; the third posterior cell is very widely open along the margin, fully twice the width of the second; the second posterior cell bulges outward a little above and below. Middle end of the second basal cell is almost absent. Anal cell narrowly open; alula short; ambient vein complete.

Abdomen: The abdomen is pollinose, with dark and light pollen, and scanty, bristly, appressed pile, which is a little longer on the sides of the first three tergites. The abdomen is more or less subcylindrical with parallel sides, or slightly clavate posteriorly; at its base it is nearly or quite as wide as the mesonotum. The first tergite has 6 to 8 long, slender bristles. Males with seven tergites, the last three reduced in length. Epandrium not quite divided at the base, but with a very wide, conspicuous, basally rounded cleft, becoming still wider above the proctiger, each half is produced into a long, blunt, dorsoventrally flared and rounded, flaplike process nearly twice as long as the large convex gonopod. Hypandrium only moderately long but wide; genital cavity open. No females were seen.

Distribution: Neotropical: *Aspidopyga cophuroides* Carrera (1949).

Genus *Cophura* Osten Sacken

FIGURES 149, 529, 1122, 1131, 1831, 1854, 1981

Blax Loew, Berliner Ent. Zeitschr., vol. 16, p. 65, 1872. Preoccupied, Coleoptera, 1860, and Coleoptera, 1863. Type of genus: *Blax bellus* Loew, 1872, by monotypy.

Blacodes Loew, Berliner Ent. Zeitschr., vol. 18, p. 377, 1874. Change of name. Preoccupied Coleoptera, 1859.

Cophura Osten Sacken, *in* Biologia Centrali-Americana, Diptera, vol. 1, p. 181, 1887. Type of genus: *Cophura sodalis* Osten Sacken, 1887, by monotypy.

Loewiella Williston, Manual . . . North American Diptera, ed. 2, p. 57, 1896. Preoccupied Diptera, 1896. Unnecessary change of name.

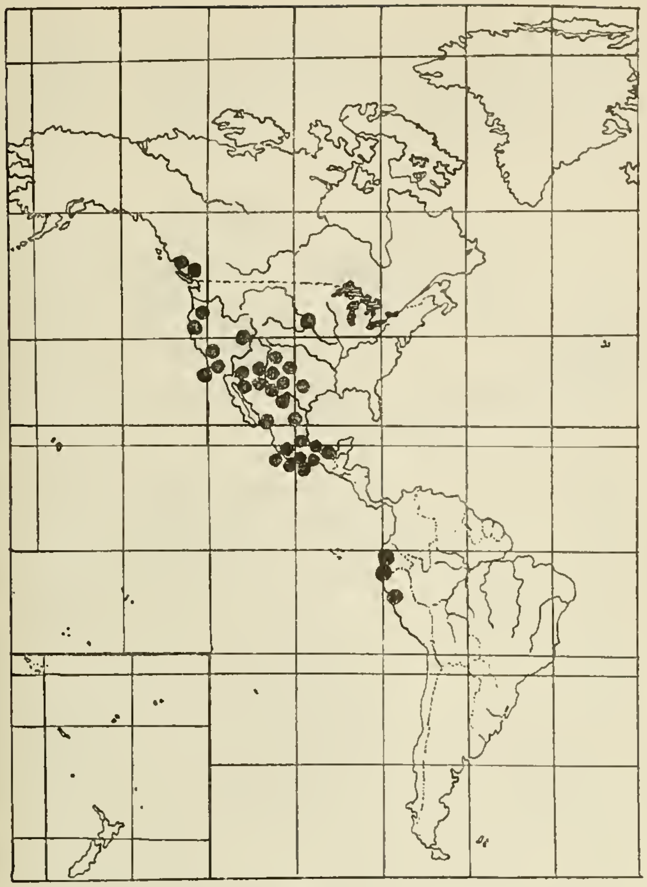
Cophura has 1 subgenus, *Buckellia* Curran.

Small flies of comparatively slender, cylindrical or slightly tapered abdomen, which is frequently a little widened near the middle or base and which tends to be flattened. The surface is not punctulate. Marginal and all posterior cells open, the anal cell usually open, sometimes closed. The face is nearly plane in profile, very slightly rounded, with transverse rows of bristles confined to the epistomal margin, the upper portion of the face at most with a few, scattered hairs. Sides of face and front approximately parallel and rather wide. Length 6 to 10 mm.

Head, lateral aspect: The face is only slightly visible in profile; it is not quite plane and tends to show a slight curvature. The face is a little more prominent below owing to the recession of the eye. Eye strongly convex anteriorly, a little more narrow on the dorsal half; the posterior profile is plane on the upper two-thirds in the type of genus but convex in a few species. The eye is distinctly though moderately recessive anteroventrally. Occiput prominent below, usually quite plane in profile behind and very narrow through the middle but in some species the occiput is thick and prominent through the middle. Pile of occiput fine and scanty. On the upper occiput the bristles vary from 15 to 20 pairs; most of them are comparatively weak and usually straight, the upper bristles of some species tend to be curved forward. Proboscis distinctly compressed laterally and from the upper profile tapered to a rounded point; from a lateral profile it is plane below but with rounded apex dorsally and with prominent, medial ridge. Apex with fine pile especially below and with some longer hairs on the basal half. The proboscis tends to be directed obliquely forward and is distinctly projected beyond the face. Palpus clearly of two segments; first excavated, second porate, cylindrical, swollen in the middle, with fine, bristly hairs close to but not at the apex. In some species the palpal shape is suggestive of *Stichopogon* Loew.

Antenna attached at the upper third of the head, comparatively elongate and slender, the first two segments of nearly equal length. The third segment is 1½ times as long as the combined length of the first two, with microsegments excluded. The third segment is slightly compressed laterally and carries two microsegments, the first quite short, the second 4 or 5 times as long and held at an oblique angle with a short spine at the apex. Pile of first segment composed of 3 to 6 stiff, moderately long bristles on the ventral surface and a few, short, appressed, stiff hairs above. Second segment with 1 to 2 long bristles below.

Head, anterior aspect: The face below antenna is a fourth the head width, slightly divergent below. Subepistomal area prominent, rather deeply excavated



Text-Figure 17.—Pattern of distribution of the genus *Cophura* Osten-Sacken.

and bare; the opposite facial fissures are rather deep. The face is densely micropubescent; also in type of genus it bears on either side near the eye margins some 12 subappressed, fine, rather short hairs. This hair tends to occupy the lateral third of the face. The front is pubescent, very slightly widened, and bears 4 or 5 fine hairs laterally. Vertex but little excavated, the ocellar protuberance however is conspicuous, with vertical sides and bearing a very large anterior ocellus and dorsally from 1 to 3 pairs of stout, divergent bristles and rarely a few additional fine hairs. Anterior central eye facets strongly enlarged.

Thorax: The entire thorax is appressed micropubescent, taking on more or less the character of the pollen on the mesonotum. The mesonotum tends to be rather high and arched, especially in front. The mesonotal pile is fine and scanty in the type of genus, with a distinct row of acrostical elements present, followed by a bare stripe and laterally undifferentiated, scattered, dorsocentral elements which become quite long and rather stout before the scutellum and are often strongly curved backward to reach almost or to the scutellar margin. Such differentiated elements in some species may extend well forward in front of the transverse suture nearly to the humerus. The type of genus possesses the following complement of long, lateral bristles, surprisingly stout for such delicate flies: humeral elements are 9 stiff hairs only; 3 (or rarely 1) exceptionally long notopleural, 2 supraalar, and 1 postalar and 4 pairs of short, weak scutellar bristles, those on scutellum rarely absent. Scutellum gently convex, pubescent, apilose, and in the type of genus and some species with 3 or 4 fine, short hairs. The propleuron has an anteroventral tuft of stiff hairs, the collar a band of scattered hair. Mesopleuron, sternopleuron, pteropleuron, and hypopleuron apilose. Metapleuron with 4 to 6 bristles; lateral metanotal slopes micropubescent only; lateral slopes of the metasternum with pile; metasternum proper chitinized, with 5 to 10 long, fine hairs. Postmetacoxal area membranous; tegula pubescent only. Prosternum dissociated.

Legs: The legs are moderately stout, the hind femur very slightly thickened distally; the pile of the legs tends to be abundant, short and appressed dorsally, the lower surfaces of the femora with very little pile. Bristles are comparatively few and weak. The type of genus bears the following complement of bristles: apex of hind femur with 2 short, stout, pale, lateral apical bristles, a single weaker apical medial bristle, a weak ventral bristle near the base but rather long. Hind lateral bristles beyond the middle, and 2 short bristles on the basal half. Apex with 1 dorsal, 3 medial, 1 tibia with 3 or 4 weak, short, dorsal, 2 well developed 4 ventral bristles on the basal half, of which the more basal 2 are quite long. This tibia bears long, strongly lateral, 2 or 3 ventral bristles. Middle femur with 3 or developed dorsal and ventral, oblique bristles which consist of 3 dorsal, 4 or 5 ventral; the basal elements are the longest and are at least half as long as the tibia. End of midtibia medially with 1 exceptionally stout, apical bristle which is straight and not recurved. Anterior femur with long, more delicate, ventral basal bristles, its tibia with 3 or 4 stout, posterior bristles; the dorsal elements are 5 or 6 but are short and weak. Apex with a distinct, ventrolateral, sharp, anteriorly curved spine which is stoutly thickened at the base and without corresponding basitarsal modification. Tarsi end in sharp claws, well developed pulvilli and empodium. Most if not all species have an anterior spur on the posterior coxa.

Wings: The wings are comparatively broad in the type of genus, but more slender in other species. All marginal and posterior cells open; anterior branch of the third vein ends immediately in front of the wing apex, posterior branch immediately behind. Anal cell closed in the margin in the type of genus, widely open in most species. The second basal cell ends in 3 veins; anterior crossvein is in the middle or just beyond the middle of the discal cell. Alula short; ambient vein complete.

Abdomen: The abdomen is as wide as the mesonotum with a tendency to be a little flattened and widened through the middle where it is often fully as wide as the thorax. Some species are a little more narrow with parallel sides. Pile of the abdomen minute, scanty, fine and suberect in the type of genus, which bears on the postlateral margin of the first tergite 5 distinct and rather stout bristles. The first sternite apilose. In other species the abdominal pile appears to be a little longer and more abundant and especially longer on the sides of the second tergite. In the male seven tergites present, the seventh three-fourths as long as the sixth. In the female there are eight tergites, the eighth two-thirds as long as the seventh. Male terminalia moderately large and conspicuous, rotate one-half; hypandrium undivided. The epandrium is undivided in the type of genus. In *Cophura acapulcae* both the epandrium and the hypandrium are divided into two pieces but it appears also rotate at least three-eighths. Female terminalia with 5 pairs of rather stout, spoon-like lateral spines. Last sternite depressed and sulcate apically.

Distribution: Nearctic: *Cophura albosetosa* Hine (1908); *ameles* Pritchard (1943); *arizonensis* Schaeffer (1916) [=*drakei* Pritchard (1935)]; *bella* Loew (1872); *brevicornis* Williston (1884), *brevicornis melanochaeta* Melander (1923); *caca* Pritchard (1943); *clausa* Coquillett (1893); *dora* Pritchard (1943); *fur* Williston (1885); *hennei* Wilcox and Martin (1945); *hesperia* Pritchard (1935); *lutzi* Curran (1931), *lutzi wilcoxi* Pritchard (1935); *painteri* Pritchard (1943); *pollinosa* Curran (1930); *scitula* Williston (1884); *sculleni* Wilcox (1937); *stylosa* Curran (1931); *texana* Bromley (1934); *truncus* Coquillett (1893) [=*highlandica* Cole (1916)]; *vera* Pritchard (1935); *vitripennis* Curran (1927).

Neotropical: *Cophura acapulcae* Pritchard (1943); *apatma* Pritchard (1943); *atypha* Pritchard (1943); *calla* Pritchard (1943); *cora* Pritchard (1943); *daphne* Pritchard (1943); *humilis* Bellardi (1861); *igualae* Pritchard (1943); *nephressa* Pritchard (1943); *picta* Carrera (1955); *pulchella* Williston (1901); *sodalis* Osten Sacken (1887); *sundra* Pritchard (1943); *willistoni* Pritchard (1943) [=*humilis* Williston (1901) not Bellardi]; *zandra* Pritchard (1943).

Subgenus *Buckellia* Curran

Buckellia Curran, Canadian Ent., vol. 57, p. 156, 1925. Type of subgenus: *Cophura albosetosa* Hine, 1908, by original designation.

Pritchard (1943) in an excellent treatment of *Cophura* Osten Sacken has discussed at length the relationship of the numerous, diverse groups within that genus, and has wisely, it seems to me, refrained from elevating these groups to generic rank, because of the overlapping character of these groups. *Buckellia* Curran is the only name that has been proposed for one of these groups and includes, besides *Cophura albosetosa* Hine on which it was founded, *Cophura scitula* Williston, 1884 (originally described as ?*Nicocles scitula* Williston), and *Cophura vitripennis* Curran, 1927. In this group of species the face is distinctly and evenly convex and recedes orally, a characteristic which Pritchard has noted, is similar to the species of the *Cophura brevicornis* group. The flies of the *Cophura albosetosa* group have a shining black abdomen, dorsally convex, marked only with posterolateral gray pollinose spots; they have a rather pronounced general similarity in appearance to some species of *Cyrtopogon* Loew.

Genus *Taracticus* Loew

FIGURES 178, 571, 594, 1125, 1134, 1694, 1988

Taracticus Loew, Berliner Ent. Zeitschr., vol. 16, p. 64, 1872. Type of genus: *Dioctria octopunctata* Say, 1823, by monotypy.

Dioctrodes Coquillett, Proc. Ent. Soc. Washington, vol. 6, p. 181, 1904. Type of genus: *Dioctrodes flavipes* Coquillett, 1904, by original designation.

Rather small flies with convex, cylindroid abdomen and granulate surface rather than punctulate. The antenna is exceptionally long and slender, especially the third segment, which bears long micropubescence and has dorsally near the middle a distinct, spine-bearing notch. The face has epistomal bristles but very little pile in the type of genus. In some species the bristles spread over at least three-fourths of the face. Hind femur characteristically with 2 exceptionally long, ventral subbasal bristles set not far apart. The anterior tibia bears a small, curved spine proceeding from a slight lobe. Length 8 to 14 mm.

Head, lateral aspect: The face is extremely short in profile in the type of genus, and nearly plane. In many species the face is still short but is gently convex. Rarely it is considerably more prominent and still more convex. The eye is rather short and high, equally developed above and below and almost equally convex anteriorly and posteriorly. The occiput is prominent but only towards the medial area, from which it gradually increases in thickness from the eye margin. The pile of the occiput is coarse, scanty and moderately long on the lower fifth, above which there is a single row of 9 pairs of fine subocular bristles along the middle occiput, followed by 5 pairs of somewhat more stout, short bristles on the upper portion of the occiput and 2 fine, short bristles behind the vertex; these postvertical bristles seem to remain quite delicate in all species. Proboscis short, subcylindrical, slightly compressed laterally towards the apex, and from dorsal aspect slightly widened towards the base. The apex is bluntly rounded with rather abundant, fine pile ventrally on the outer third and some long hairs ventrally at the base. The medial ridge is low. Palpus clearly of two segments; the first segment is excavated, the second is comparatively short, robust, cylindrical, a little tapered towards the apex with large apical pore. In the type of genus there are only a few subapical bristles.

Head, anterior aspect: The face below the antenna is a fourth of the head width and slightly divergent below. Subepistomal region moderately large, nearly plane, chiefly oblique and nearly bare or sometimes wholly pubescent and with a tendency to grade into the face. The face is micropubescent. In the type of genus there is a single curved row of stout bristles above the epistomal margin containing 4 to 5 pairs, to which 1 or 2 fine hairs may be added, and above on the face there are 5 short, fine hairs on either side; rarely the entire lower two-thirds of the face carries numerous long, stout bristles, the more central ones accentuated, and all arranged in 5 or 6 fairly regular rows. The antenna is attached at the upper third of the head, unusually long and slender; the first segment is longer than the second, the second but little longer than high. The third segment is more than 2½ times as long as the first two combined, of nearly equal thickness throughout and dorsoventrally compressed apically. In the type of genus the third segment is long pubescent, in other species such pubescence is restricted to the outer third or more; this segment bears near the outer third a distinct, dorsal incision with a basally stout spine. Pile of the first segment composed of several stiff hairs above, and with 1 bristle and 2 hairs in some species, or in others as many as 10 bristles; the second segment has 1 bristle and 1 or 2 hairs, the stout bristle may be longer than the first two segments. Front very slightly wider than the face below, antenna slightly convergent at the vertex. The front is short, pubescent, the ocellarium exceptionally large, with vertical sides, large ocelli, and behind the ocelli a single pair of stout, or sometimes long and slender bristles; there may be 3 or 4 other fine, shorter hairs. Eye facets strongly enlarged.

Thorax: The thorax is densely, coarse, appressed pubescent over the whole pleuron and in stripes or isolated spots on the mesonotum. Pile of mesonotum scanty, setate and appressed, a single acrostical row present and the dorsocentral elements become long and stout at the suture, or sometimes there is only fine, nearly erect scattered pile. In the type of genus the following complement of stout, long, lateral bristles present: 2 notopleural, 1 supraalar, 1 postalar, 1 pair of scutellar, which may increase to 3 pairs, or reduced to several very short bristles, or be entirely absent. Scutellum flat, but rugose and transversely wrinkled, in part often thinly pubescent. Propleuron with a number of long, fine hairs anteroventrally, 4 or 5 pairs of weak bristly hairs on the collar, 8 to 10 slender hairs or more on the posterodorsal section. There are tufts of weak, bristly hairs on the anterior sternopleuron, the remaining sternopleuron, hypopleuron; in the type of genus the pteropleuron is apilose but may have 3 or 4 slender hairs. Metapleuron with a vertical row of 6 long bristles behind which is a row of short hair. Metanotal slopes micropubescent only; lateral metasternum with pile; ventral metasternum chitinized with a separate band of chitin and several long, fine hairs; postmetacoxal area membranous; the tegula may have a few bristles. Prosternum dissociated.

Legs: The femora are moderately thick; the hind femur is slightly dilated from the base. Pile of legs scanty, short and appressed and quite scanty ventrally on the femora where it is long, fine and erect. Bristles are especially well developed and tend to be long, basally stout, oblique and attenuate; the type of genus shows the following complement: hind femur with 1 short lateral at the basal third, 1 dorsolateral and 1 mediolateral at the apex, and 1 subdorsal a short distance from the apex. Ventral aspect of this femur on the basal third characteristically with a pair of exceptionally long, erect bristles located not far apart. Hind tibia with 4 dorsal elements becoming progressively longer, 2 long lateral before and beyond the middle, 3 still longer ventrolateral beginning just before the middle; the apex has 1 dorsolateral, 3 lateral, 1 medial, 2 or 3 ventral bristles. On the hind tibia there is a brush of setae beginning at the basal third, becoming more accentuated distally and continued on to the tarsus with ranked pile. Middle femur with exactly similar bristles to the hind pair except that there is only a single, much less prominent basiventral bristle. The middle tibia has 3 exceptionally long, stout, anterodorsal, sometimes 4 or 5, 3 to 5 short posterodorsal, 3 to 4 extraordinarily long ventral, and 5 to 8 more slender, long posterior bristles. Anterior femur with a small anterior apical bristle, 5 short dorsal, a like number of anterodorsal, 5 or 6 short posterior, and at least 3 or 4 quite long, posteroventral bristles. Anterior tibia at apex with subapical bristles and at the apex proper with a ventrolateral, stout, curved spine but without corresponding basitarsus modification and without basal lobe. All tarsi end in stout, sharp claws, bent chiefly at the apex, large pulvilli, and an empodium swollen at the base.

Wings: Marginal and all posterior cells widely open, anal cell widely open or occasionally closed in the margin. Anterior crossvein at or beyond the middle of the discal cell. Alula of moderate width; ambient vein complete.

Abdomen: The abdomen is nearly or quite as wide as the mesonotum, rather convex, and with the sides curled downward conspicuously; the middles of the tergites are somewhat flattened, the apical portion of the abdomen is gently tapered. First tergite with 2 to 5 bristles, stout or slender. Pile of abdomen moderately abundant, fine and suberect, longer and erect laterally but scanty. Male with seven tergites, the seventh is a third to a fourth as long as the sixth; rarely there may be only six tergites. Female with eight tergites, the seventh one-half to two-thirds as long as the sixth and the eighth a little shorter. Male terminalia rather short, rotate one-fourth to the right. The epandrium is notched apically or with a fissure or cleft extending nearly to the base; in a few species extending entirely to the base. Female with 7 pairs of blunt, spoon-shaped spines and with 3 or more distinct, stout, marginal bristles on the lower structures. The last sternite has an oval cleft on the outer half.

Distribution: Nearctic: *Taracticus niger* Macquart (1838); *octopunctatus* Say (1823) [=*flavipes* Coquillett (1904), *rufipes* Jones (1907)]; *paulus* Pritchard (1938); *ruficaudus* Curran (1930).

Neotropical: *Taracticus aciculatus* Pritchard (1938); *argentifacies* James (1953); *guerrerensis* Pritchard (1938); *nigrimystaceus* Williston (1901); *nigripes* Williston (1901); *similis* Williston (1901); *vitripennis* Bellardi (1861).

Genus *Parataracticus* Cole

FIGURES 83, 516, 985, 994, 1743, 1871, 1952, 2028

Parataracticus Cole, Pan-Pacific Ent., vol. 1, p. 11, 1924. Type of genus: *Parataracticus rubidus* Cole, 1924, by original designation.

Quite small flies, easily recognized by the absent or reduced pulvilli, of which there are at most minute stubs, combined with the long, somewhat bladelike third antennal segment which carries a bristly subapical spine. The face is short, with very coarse bristles, and all the marginal cells of the wing are open. Each tergite bears very stout, short bristles laterally. Length 5 to 7 mm.

Head, lateral aspect: The head is of medium length, face quite short, a little more prominent below due to the recession of the eye. Occiput prominent in the middle and still more below, the posteroventral recession of the eye beginning a little below the middle of the head. The pile is scanty but long and fine ventrally. Stout bristles begin at or below the middle of the head and consist of 8 pairs besides 4 behind the vertex. The proboscis is short, stout, cylindrical, laterally compressed toward the apex and slightly truncate dorsally towards the apex. Palpus minute; the first segment is extremely small and more or less fused medially; the second segment is long, slender and cylindrical. The antenna is attached a little above the middle of the head; the first two segments quite short, especially the second; only the first segment bears bristles or pile ventrally, and it has 2 or 3 stout bristles. Third segment more or less flattened, beginning to increase in width from near the base, and beyond the middle very slightly decreasing in width. The apex is blunt and located dorsally a considerable distance from the apex; there is a shallow incision with a bristly spine. The third segment is 5 or 6 times the combined length of the first two segments. The whole antenna is a little longer than the head.

Head, anterior aspect: The head is moderately wide and wider than the thorax. The face is quite wide, with parallel sides, pubescent, without pile or at most a few short hairs; however, the face does have numerous, quite stout, yellowish bristles. The front is slightly divergent, with 3 stout bristles near the eye margin; vertex moderately excavated, the ocellarium large with slanting sides and bearing 1 pair of stout, long, postocellar bristles and sometimes a shorter pair. Anterior eye facets a little enlarged.

Thorax: The thorax is moderately hump-backed and convex; the pile scanty, fine and setate. Acrostical pile or bristles absent; dorsocentral bristles strongly developed anteriorly as well as posteriorly. The lateral complement of stout bristles consists of 4 humeral, 1 posthumeral, 2 notopleural, 1 supraalar, 1 long and 2 minute postalar, and 3 to 5 pairs of scutellar. Scutellum flat, without pile. Pronotal collar and cervical sclerite with only fine pile. Lateral pronotum with 4 stout bristles. Metapleuron with a vertical row of 6 to 8 long, slender bristles. Remainder of pleuron apilose and partly nonpollinose. Metanotum micropubescent only. Metasternum laterally and ventrally with fine pile. Postmetacoxal area membranous. Prosternum dissociated.

Legs: The femora and tibiae are stout but not swollen, the former with appressed, short, setate pile. Hind femur with a few conspicuous bristles: 1 lateral on the basal half, 1 distal, 2 dorsolateral near the apex, the same number of dorsomedial, and 1 or 2 small apical lateral bristles. Middle femur with 1 bristle posteriorly at the apex and 3 small bristles anteriorly at the apex. Bristles of tibia and tarsus well developed. Hind tibia with 4 dorsal, 5 lateral and sometimes 3 or 4 additional bristles near the base, and 6 ventrolateral bristles. Middle tibia with 6 dorsal, 5 or 6 longer anterodorsal, 10 posterior, and 4 long posteroventral bristles. Anterior tibia similar with a partly doubled anterodorsal row of bristles in addition to a dorsal row. They have 8 posterior and 3 posteroventral bristles. Apex of protibia with no process, but with a fine, twisted, black spine. Basitarsus unmodified. Pulvilli apparently absent and reduced to a spot of minute fuzzy pile at the base of the claw. Empodium half of the length of the sharp, gently curved and apposed claws.

Wings: The wings are broad, the marginal and all of the posterior cells and the anal cell widely open. Alula of moderate length; ambient vein complete; wings immaculate.

Abdomen: The abdomen is comparatively broad and robust; at the base it is fully as wide as the thorax, slightly or sometimes strongly tapered. Pile quite scanty and scattered, fine and appressed including the margins. The sides of the first tergite have 4 to 6 stout spines; remaining tergites without spines in the female but with 3 or 4 stout spines in each posterior corner in the male. Abdomen more or less shining, with small pairs of transverse pale pollinose spots. Male with six well developed tergites, the seventh totally concealed. Females with eight tergites, progressively and slightly reduced in length beyond the fourth. Male terminalia small, short and inconspicuous, the epandrium with a triangular cleft almost or possibly reaching quite to the base. Gonopod small and of about the same length. Hypandrium short; genital cavity exposed. Females with 6 pairs of slender, sharp, attenuate spines upon the acanthophorites.

Distribution: Nearctic: *Parataracticus niger* Martin (1955): *rubidus* Cole (1924); *wyliei* Martin (1955).

Genus *Omninablautus* Pritchard

FIGURES 102, 518, 1121, 1130

Omninablautus Pritchard, Amer. Mus. Novitates, no. 813, p. 1. 1935. Type of genus: *Omninablautus arenosus* Pritchard, 1935, by original designation.

Small flies characterized by the short, high mesonotum, dense pollen and a transverse shieldlike mat of dense pile across the middle of the face. The pulvilli are lacking, the claws sharp, very slender and only slightly curved. The anterior tibia has a distinct, slender, black, sigmoid spine which at once separates these flies from *Ablautus* Loew to which they are either related or convergent. From *Hodophylax* James they are separated by the long dorsocentral bristles and long ventral antennal bristles. Length 5–8 mm.

Head, lateral aspect: The face is very slightly produced and elevated in profile and gently rounded; the eye is narrowly recessive anteriorly on the ventral posterior third of the head, strongly convex anteriorly, wider below and gently convex behind. The occiput is obliterated on the upper half, moderately prominent below with no pile dorsally but with rather abundant, moderately long, stiff pile ventrally. Bristles begin at the middle of the head and consist of 5 weak pairs, but dorsally, behind the vertex, there are 5 or 6 stout, straight bristles in a transverse row. Proboscis small, rather robust, cylindrical, very slightly tapered to a blunt apex and bearing a number of fine hairs distally in the ventral midline and others at the tip. There are 3 or 4 fine, long hairs ventrally in the middle. The proboscis is directed almost but not quite horizontally forward. Palpus minute, clearly composed of two segments. First segment with a few delicate hairs ventrally, dorsally and laterally. The second segment is short with a fine, ventroapical bristle. The antenna is attached at the middle of the head, moderately long, the first segment a little shorter than the second, the latter widened apically. The third segment is slender, nearly cylindrical, of almost uniform width, perhaps slightly wider near the base and beyond the middle; its apex is slightly narrowed and bears a minute microsegment followed by a slightly longer one which carries an apical spine. First segment and the second with 2 or 3 stiff, appressed setae dorsally; the first bears long, ventral bristles below; 2 of which are comparatively stout; these are nearly as long as the third segment. Second segment with 1 slightly shorter, stiff bristle below. The third antennal segment is not quite twice as long as the first two combined.

Head, anterior aspect: The face below antenna is nearly one-third of head width, with parallel sides or at most very slightly divergent; subepistomal area small, deeply concave and bare. Cheeks between the eyes and the epistoma with a deep, narrow fissure. Face densely appressed micropubescent, and bearing a dense mat of long, downwardly directed pile which is situated on a triangular area reaching nearly to the antenna. Hidden beneath the mat is a fringe of epistomal bristles and there are 2 or 3 bristles along the side margins of the subepistoma. The front is slightly divergent, long and spacious; the vertex at most very slightly convergent and shallowly excavated. In this respect these flies suggest *Stichopogon* Loew, although the front is not so wide above. There is nevertheless a strong similarity. Sides of the front with 3 or 4 stiff hairs; ocellarium large, conspicuous, with steep sides and large ocelli and bearing centrally 2 pairs of stout, long, divergent bristles and at the corner of the posterior ocelli with 2 additional bristles. Eye facets strongly enlarged centrally.

Thorax: The mesonotum and pleuron densely pollinose. The pile is very scanty and composed of moderately long, suberect, bristly hairs. Humerus without pile but with 5 bristles and an acrostical row present and also tuberculate dorsolateral bristles which are strong, long and stout anteriorly as well as posteriorly, each row containing 7 or 8. On the lateral margins there are 2 notopleural, 1 postmedial humeral, and 1 medial humeral bristle. There is a single, long, stout supraalar, 2 or 3 postalar and 3 pairs of scutellar bristles. Scutellum moderately thick, flat on the basal half, strongly sloping beyond, pubescent and apilose. Propleuron with dense, tufted, coarse pile matching that upon the occiput; the posterior upper section has similar dense pile which is matted and appressed and directed backward for the most part. Mesopleuron and sternopleuron, pteropleuron and hypopleuron without pile. Metapleuron with a double vertical row of numerous, fine, long, fanlike bristles. Metanotal slopes micropubescent only; metasternal slopes with 15 or 20 long, fine hairs; metasternum apilose. The postmetacoxal area membranous; tegula pubescent only.

Legs: All the femora are stout, the anterior and to a lesser extent the middle pair slightly thickened towards the base, their pile dense, matted, flat appressed, coarse and somewhat flattened. The hind femur bears on the outer half an oblique, assymetrical row which includes near the middle a lateral, beyond it a dorsolateral, beyond that a higher dorsolateral, followed by near the apex a pair of dorsal, and at the apex 2 shorter, smaller dorsal bristles. There are also 4 relatively long bristles in a lower, lateral row and there are 5 ventrolateral, and 3 or 4 ventral bristles. Medial and anterior surfaces of this femur with the coarse, matted, appressed pile absent and its place partly taken by a few minute delicate setae. Hind tibia with 5 long, stout dorsal, 4 medial, 2 dorsolateral, 1 strong lateral at the apical third, 5 ventrolateral, and 2 ventral bristles, all strong on the outer fourth. Medially on this tibia there is scattered pile similar to the other coarse pile and only at the apical eighth is there a brush of setae. Apex with 1 dorsal, 1 dorsolateral, 1 lateral, 4 or 5 ventral and 3 medial bristles. Middle femur with 2 pairs of weak dorsal bristles near the apex, 5 posteroventral, 5 or 6 anteroventral bristles. This tibia has 4 dorsal and 5 anterior bristles, the last two are long, 5 long posterior and 4 or 5 weak ventral bristles. Anterior femur similar and also with a cluster of bristles dorsally and posteriorly near the apex consisting of 5 dorsal bristles in a row and a pair of posterior bristles. The tibia is similar, the anterior bristles shorter but the posterior bristles equally conspicuous. Anterior and middle tarsi also with conspicuous, terminal circlet of 5 to 6 long bristles. All tarsi end in long, slender, sharp, slightly curved claws; a long slender, basally thickened empodium; the pulvilli absent.

Wings: The wings are hyaline; marginal cell widely open; anterior branch of third vein ends at the wing apex. All posterior cells widely open; anal cell open; alula moderately large; ambient vein complete; costa with very sparse, coarse, long setae.

Abdomen: The abdomen is comparatively short and robust, basally as wide as the mesonotum, distinctly shorter than the wings, the first tergite unswollen. There are 6 tergites in the male, with the seventh showing as a very narrow linear flap beneath the sixth; sixth tergite without pollen, polished and bare; remaining tergites densely flat appressed, silvery pollinose. There are eight tergites in the female, the last somewhat shorter, the last four without pollen. Pile of abdomen restricted to a few, scattered setae and weak bristles laterally. Sides of first tergite with moderately abundant, curled, suberect, fine pile and with 5 stout, moderately long bristles in a row and closely adjacent to one another. Sides of second tergite with 6 or more rather stout bristles; the third tergite with only 3 or 4 very weak bristles or strong setae. Male terminalia moderately large, of the ventrally open type, partly rotate. Dorsal epandrium distinctly separated. Gonopod short and robust basally with short dorsal apical process. Proctiger cleft and but little longer than the epandrium. Hypandrium extremely short and undivided. Female acanthophorites each with a row of 4 slender, sharp-pointed spines; no additional spinous bristles below.

Distribution; Nearctic: *Omninablautus arenosus* Pritchard (1935).

Genus *Aterpogon* Hardy

Figures 177, 188, 553, 557, 1124, 1133, 1742, 1983, 2033, 2115

Aterpogon Hardy, Proc. Linnean Soc. New South Wales, vol. 55, p. 254, 1930. Type of genus: *Aterpogon cyrtopogonoides* Hardy, 1930, by original designation.

Small, hump-backed flies with dense, long, stiff, suberect pile on the mesonotum. Both mesonotum and abdomen are smooth and polished. The bristles are greatly reduced. Probably related to *Cophura* Osten Sacken, they differ in the unmodified epandrium, high convex mesonotum with bristles restricted to very weak, lateral elements and none on the scutellum. Length 8 mm.

Head, lateral aspect: The length of head is normal. The face is almost completely plane and level with the eyes, gently convex and receding below and very slightly visible in profile on the lower part. The eyes are slightly recessive anteroventrally, leaving the occiput exposed below and obliterated on the entire upper half, or at most barely visible. Pile of occiput sparse, fine, moderately long and submarginal with the eye; it is a little more abundant on the lower third. Bristles are absent, the upper pile being merely a little more stiff. The proboscis is small, rather strongly compressed laterally and from the upper view swollen a short distance back from the apex and again near the base; its lower apical surface is plane, the dorsal surface gently rounded, the apex bluntly pointed with a few fine hairs; base below with a few long hairs. Palpus clearly of two segments, the first segment excavated, the second segment porate; both segments with a few, long, stiff hairs below, the second with 2 or 3 hairs surrounding apex. The antenna is attached at the upper third of the head, moderately long and slender; the first segment is only half as long as the second; the second considerably wider apically, and the third not quite as wide as the apex of the second and very slightly and gradually narrowed towards the apex. Third segment bears an extremely short, minute, microsegment followed by a second, slightly longer, apically tapered microsegment to which is attached a minute, sharp, distinct spine. First segment with a few, long, stiff hairs below and above; second segment with a single, long, stout bristle apically; entire upper margin with stiff, appressed setae.

Head, anterior aspect: The face below antenna is less than one-fourth the head width and divergent below. Subepistomal area short, small, horizontal, concave and bare. The face is micropubescent, without pile on the upper half and with a patch of 8 stiff, downturned hairs on either side below the middle, besides a band of comparatively short, stiff bristles placed in 2 or 3 rows transversely across the lower face. Subepistomal margins with 2 or 3 stiff hairs. The front is slightly divergent above the antenna, the vertex not convergent. Sides of front with 4 or 5 stiff hairs on either side; vertex moderately excavated; ocellar protuberance large, high, with vertical sides, the ocelli large; it bears 5 or 6 pairs of long, stiff, bristly hairs. Eye facets strongly enlarged centrally. It will be noted that from the anterior aspect the eyes extend down below the face and below the lateral margin of the posterior cheeks.

Thorax: The mesonotum is rather strongly humpbacked and convex both anteriorly and posteriorly, not pollinose but with micropubescence narrowly on the lateral mesonotal margin and over the whole pleuron. The mesonotal pile is quite abundant, long and nearly erect, and fine to stiff in quality without obscuring the ground color; there is a double row of fine, not bristly, acrostical elements followed by a narrow, bare stripe. Humerus with long pile, lateral mesonotal bristles reduced to 2 extremely weak, slender notopleural elements; bristles absent beyond. There are 2 or 3 long, stiff hairs on the postalar region. The scutellum has a fringe of 16 long, stiff hairs, and it is convex, the surface bare, without pile. Pleuron with a number of fine, long hairs above, below and on the collar. Anterior extension of mesopleuron alone has pile; pteropleuron, hypopleuron and sternopleuron without pile and no pubescent patch spot. Metapleuron with a middle band of scattered, long hair; metanotal slope swollen, micropubescent only; metasternal slope with numerous, long hairs. Metasternum with 12 to 15 long hairs; postmetacoxal area membranous. Tegula pubescent only. Prosternum small and dissociated.

Legs: The anterior 4 femora are very slightly thickened towards the base; hind pair moderately elongate, very slightly wider in the middle and beyond, stout without being thickened, their tibiae also stout, though gradually tapered towards the base. All pile and bristles pale except on the tarsi. The femora are without bristles. The hind femur bears scattered, fine, rather long, erect hairs above, laterally and below but never with a dense fringe. Hind tibia with a dense, nearly erect, ventral fringe extending to the basal fourth; the pile is nearly as long as the basal tibial thickness; this tibia bears 7 weak, dorsomedial bristles, 6 slightly stronger dorsolateral bristles and 3 ventrolateral bristles. Apex with 1 dorsal, 2 lateral bristles, 1 medial, 4 ventral elements. Middle femur with fine, scanty, long pile above and below; the tibia has longer and stouter bristles, 5 anterodorsal, 2 weak posterior, 4 weak posteroventral, and 3 quite long, attenuate, apically fine, oblique, ventral bristles. Anterior femur with a few long hairs below and shorter hair above on its tibia but long, dorsal bristles are lacking; there is 1 minute, anterobasal, 2 to 4 short dorsal and 3 long, stout, attenuate, oblique, ventral bristles. Apex with a strong, curved spine; base of basitarsus microdenticulate. All tarsi end with long, slender pulvilli, slender, sharp claws only slightly curved and empodium a little more than half as long as claw. Hind coxa without tubercle.

Wings: The marginal cell is widely open; anterior branch of the third vein ends at wing apex; fourth posterior cell open, but narrowed to two-thirds of its maximum width; anal cell widely open; the second basal cell ends in 3 veins. Alula large, ambient vein complete.

Abdomen: Abdomen and wings of the same length; abdomen rather robust, very slightly wider across the third tergite and the third tergite not quite as long as wide. The abdomen is slightly tapered from the end of the third segment; the surface is quite smooth; first tergite not swollen or ridged laterally. Pile of abdomen quite scanty, fine, moderately long and erect, somewhat longer along the sides of the first and second tergite, and longer laterally everywhere than in the middle. Bristles quite absent upon the abdomen; sternites, except for the first, with some fine long hair. Male with six well developed tergites and the seventh is only a fourth as long as the sixth. Female with eight tergites, the last two reduced in length. Male terminalia rotate about one-fourth to the right, dominated by the quite large, shallow, bowllike, uncleft, unnotched epandrium with tiny proctiger set medioapically. The epandrium is long but wide. The very short, small hypandrium leaves the cavity of the genitalia open and exposed. The gonopod is comparatively large and quite convex, almost subglobular in appearance on its basal part and with a distal slender process. The hypandrium is so short it is almost concealed beneath the short seventh tergite. Female with a row of concave spines on the acanthophorites.

Distribution: Australian: *Aterpogon cyrtopogonoides* Hardy (1930).

Paraterpogon Paramonov, new genus

FIGURES 527, 1127, 1136, 1685, 1733, 1737, 1913, 1916

Paraterpogon Paramonov, in litt. Type of genus: *Paraterpogon punctatus*, Paramonov, in litt.

Small, hump-backed flies with a drooping abdomen; the thorax very sparsely and minutely pilose, the bristles weak and reduced, the mesonotum and abdomen strongly and coarsely punctate. They are related to *Aterpogon* Hardy; its only distinguishing characters are the presence of small but stout bristles on the sides of the hind femur, the punctate surface, the presence of only minute, sparse, fine, appressed setae on the mesonotum instead of long pile, the presence of supraalar bristles and a single antennal microsegment instead of two microsegments. Possibly related to *Cophura* Osten Sacken and distinguished by the humped mesonotum, simple epandrium and absence of scutellar bristles. Length 6 to 8 mm.

Head, lateral aspect: The face barely visible below near the epistoma; the eye is normal, strongly convex anteriorly, gently convex behind and slightly recessive anteroventrally below. The occiput is narrowly visible in profile through the middle, obliterated near the vertex, a little more prominent at the bottom. Occipital pile fine and only moderately long and scanty, becoming a little more abundant on the lower third and spreading inward medially. On the upper third of the occiput are a few, extremely weak, slender bristles, 9 or 10 pairs. Proboscis small, strongly compressed laterally, rather blunt apically, with a dorsomedial ridge. From a dorsal view it is slightly expanded near the apex and again on the basal third. The apex bears a number of long, fine hairs, the base below with only a few long hairs. It is directed obliquely forward. The palpus clearly of two segments, the first segment excavated; both segments with a few long hairs ventrally. The antenna is attached to the upper third of head and moderately elongate and slender. The first segment is little more than one-third as long as the second, the second twice as wide at apex; the third segment is as long as the first two together and except at its immediate base and apex, it is about as wide as the end of the second segment; this third segment bears a single, moderately long, microsegment, to which in turn is attached a short, distinct, minute spine. First segment with 2 or 3 minute setae; second with several longer setae and a weak subapical bristle below, and setae over most of its dorsal length.

Head, anterior aspect: The face is pubescent, without pile on the upper third, and at this point with a group of weak hairs rather appressed and directed downward and restricted to the outer third. Below and transversely across the epistomal margin there is a group of hairs moderately long, obliquely turned downward, which appear to vary in stiffness but are scarcely to be called bristles. The front is slightly divergent, the vertex not divergent; the front bears a few fine hairs laterally above. The vertex is moderately excavated, the ocellar protuberance large with vertical sides; the ocelli large, slightly visible in profile and with 6 to 8 pairs of fine, short hairs. Eye facets strongly enlarged centrally; the eyes extend distinctly below the face and epistoma.

Thorax: The thorax is bare and polished, the lateral margins narrowly and the whole of the pleuron, except for a small bare spot on the anterior sternopleuron and central pteropleuron, micropubescent. The mesonotum is strongly convex both anteriorly and posteriorly. The mesonotal pile is short, subappressed, fine, scanty and setate and arises from deep, coarse punctures. There is a double row of scanty acrostical elements followed by a wide bare space; the dorsocentral bristles are expanded anteriorly to and behind the humerus. Humerus bare and polished, though with pubescence anteriorly below. Rather weak, pale bristles are present as follows: 1 notopleural, 3 postsupraalar; no postalar, and the scutellar margin with 2 pairs of rather short, stiff hairs and 2 pairs of still shorter, intermediate hairs. The surface is bare except for pubescence along the base, which pubescence is also present, though more narrowly in *Aterpogon*. Propleuron with a few long, scattered, fine hairs on the pronotum laterally and more abundant hairs below. Remainder of pleuron without pile, except for a few hairs on the anterior mesonotal prolongation and a vertical row of 6 moderately long, very delicate hairs which are not bristly on the metapleuron. Metanotal slopes pubescent and tegula pubescent only. Metasternal slopes with long pile on the upper portions; the metasternum with a few long hairs; postcoxal area membranous. Prosternum dissociated.

Legs: The anterior and middle femora slightly thickened towards the base; posterior femur a little wider through the middle, stout without being thickened and only moderately elongate. The hind tibia is stout being gradually and narrowly attenuate towards the base. All bristles and pile pale except on tarsi. Hind femur with a few scanty, long hairs above and equally scanty, longer hairs below; laterally this femur bears short but quite stout bristles. Hind tibia with 5 dorsolateral, 7 dorsomedial, and 3 somewhat longer ventrolateral bristles. Ventral surface with suberect, dense fringe of pile which is rather shorter than in *Aterpogon*, but of similar character; it extends to the basal fourth. Apex with 1 dorsal, 1 lateral, 2 medial, and 2 or 3 ventral bristles. Middle femur with only fine pile and 2 long hairs ventrally at the base. This tibia with 3 short posterodorsal, 2 rather long, oblique, anterodorsal, 3 posteroventral and 3 quite long, oblique, attenuate ventral bristles. Anterior femur with a few fine, long hairs below, its tibia with a double row of very short bristles above, each containing 2 or 3 and with 2 moderately long, oblique posteroventral elements below. Apex with a strongly curved ventral spine, the basitarsus microdenticulate and with posteriorly a dense fringe of short, fine pile, only replaced by setae anteriorly. Tarsi end with long, slender pulvilli, sharp claws bent chiefly at apex and empodium two-thirds as long as claws. Hind coxa without tubercle.

Wings: The wings are subhyaline, the base often brown. Marginal cell widely open; anterior branch of third vein ends at apex; fourth posterior cell open but narrowed two-thirds of its maximum width; anal cell widely open; second basal cell ends in 3 veins; alula large, ambient vein complete.

Abdomen: The abdomen is comparatively robust, very slightly wider towards the end of the third or fourth segments. On the first five segments it is coarsely and strongly punctate. The abdomen is distinctly drooping, the sides rather strongly rolled; first tergite not swollen laterally. Pile of abdomen minute, appressed setate, arising from punctures; it is very slightly longer along the lateral margin; bristles absent; sternites with a few fine, long hairs, the first excepted. There are six tergites in the male, the seventh concealed beneath the sixth; eight tergites in the female, the last two considerably shortened. Tergite eight about half as long as tergite seven; tergite seven about half as long as the sixth. The sixth tergite three-fifths as long as the fifth. Male terminalia apparently rotate, nearly one-half to the right. Hypandrium short, the cavity widely open and exposed. Epandrium large, scooplike and undivided. Female with a row of obtuse, concave spines on the acanthophorites. The ventral plate or eighth sternite has compressed, V-shaped, cleft, medially apically produced portion.

Distribution: Australian: *Paraterpogon punctatus* Paramonov, in litt.

Geuus *Saropogon* Loew

FIGURES 157, 157A–E, 186, 559, 1160, 1169, 1774, 1855, 1993

Saropogon Loew, Linnaea Entomologica, vol. 2, p. 439, 1847. Type of genus: *Dasypogon luctuosus* Wiedemann, 1820. Designated by Coquillett, 1910, the fourth of 4 species.

Sarapogon Williston, Trans. American Ent. Soc., vol. 18, p. 74, 1891, *lapsus*.

Saropogon has 1 subgenus, *Lycomax*, new subgenus.

Medium size flies with the marginal and all of the posterior cells widely open, the anal cell widely open or narrowly closed. The general coloration is often pale, sometimes blackish. Generally the face, which is never prominent, usually plane, is without pile or bristles, except on the lower third or less and they are often confined to the epistomal margin. Femora often with bristles nearly absent or greatly reduced. Head and abdomen drooping. The protibial process is short and its spine often twisted. The abdomen is cylindroid, at most slightly tapered and the antenna approximately as long as the head. The species of this genus tend to be comparatively variable and the sexes may be sometimes of greatly different color. Length 10 to 20 mm.

Head, lateral aspect: The head is of medium length, with the face short and usually plane; more rarely there is a transverse depression below the middle, and sometimes the face is very gently convex. The occiput is never prominent, except below where there may be a moderate anteroventral recession of the eye. Occipital pile stiff, loose and scattered, with weakly developed bristles beginning at the midplane of the occiput. The proboscis is prominent, extending well beyond the face, with high medial ridge disappearing apically. The apex is rather sharply pointed and bears fine bristles or pile; base and sides below with numerous, long, bristly hairs. Palpus clearly of two segments; the first segment is excavated, the second spindlelike with apical pore and numerous bristly hairs. The antenna is elongate and attached at the upper fourth of the head; usually of the same length of the head, but may be a little longer, the third segment is of the same or slightly greater length than the combined first two segments with short or long obliquely truncate, spine-tipped microsegment. The third segment may be scarcely wider than the second, or it may be widened in the middle or throughout its length; dorsal bristles absent.

Head, anterior aspect: The face is densely pubescent; usually without pile or bristles on the upper two-thirds of face, and such elements are often confined to the narrow, supraepistomal border. The face is wide, from a fourth to two-fifths the head width, the front is slightly wider than the upper face, pollinose, with scattered, fine, bristly hairs on either side and the vertex shallowly to moderately excavated with low, broad, ocellar protuberance bearing 2 or 3 pairs of bristles. The central anterior eye facets are moderately enlarged.

Thorax: The mesonotum is generally bare in appearance; the pile is restricted to rather minute, scattered, appressed, bristly setae and sometimes longer hairs along the lateral margin. The mesonotum is low, at most gently arched, often pollinose and bears the following complement of bristles: no humeral, 2 or 3 notopleural, 1 or 2 supraalar, 2 postalar, and 1 to 4 pairs of scutellar bristles. The pronotum bears stout bristles; the postpronotum is quite prominent, separated from the anterior portion by a deep crease, and usually bears several stout, lateral bristles, but sometimes only a tuft of bristly hair. The pleuron may be quite bare or thinly or densely pubescent. Mesopleuron, pteropleuron, and hypopleuron without pile; the metapleuron has a vertical row or band of moderately stout bristles. Prosternum dissociated. Metanotal callosity without pile or bristles. Postmetacoxal area membranous. Lateral metasternum with pile.

Legs: The hind femur is stout without being swollen; its pile consists of rather dense, fine, subappressed setae, the bristles reduced to few or none; rather characteristically there is a stout, lateral bristle at the basal third; this tibia bears quite stout, rather short bristles, 2 to 5 dorsomedial, 4 to 6 dorsolateral, 3 to 6 ventrolateral bristles. The apex has 8 to 10 bristles, all but one of which are ventral. Anterior and middle femur with similar short setae and with a single stout, posterior bristle near the apex. Anterior and middle tibiae each with anterodorsal, posterodorsal, posteroventral, and ventral bristle rows, the middle tibia also has a row of short anteroventral bristles; all these bristles are short and stout except the longer ventral elements, the first of which is attached at the middle; the pile is scanty or absent but fine, appressed setae are commonly present. The apex of the anterior tibia usually has a short protuberance, rarely extended beyond the apex and bearing a stout, sometimes twisted spine. Base of basitarsus with a few denticles; claws sharp; pulvilli fully developed; empodium flattened.

Wings: The wings are generally broad, the marginal cell and all of the posterior cells widely open except the fourth, which is open but sometimes narrowed. Anal cell usually wide open, rarely closed in the margin. Alula present; ambient vein complete.

Abdomen: The abdomen is generally cylindroid, occasionally flattened across the middles of the tergites. Sides either nearly parallel or only slightly tapered. Males with eight tergites, the eighth quite short. Females with the eighth tergite approximately half as long as the seventh. Pile of abdomen scanty, short, fine, setate and appressed, giving these flies quite a bare appearance. Bristles restricted usually to the first tergite where there are 2 to 6 stout pairs laterally. Second tergite quite uncommonly with 1 or 2 bristles. Male terminalia with convex, conical, undivided epandrium or the latter broad, shieldlike, apically cleft or fully cleft and overlapping, but never with well developed or pronglike superior forceps; the condition varies according to the subgenera. Female terminalia with a circlet of spines upon the acanthophorites.

Saropogon has a nearly world wide distribution. Some of the species show minor differences, but since they are principally associated with the male terminalia and since no correlating differences have been found for females, it is difficult to see how these distinctions, such as for *Araiopogon* Carrera, can rank as more than subgenera. There are quite a few species in New Zealand. The genus is most abundant in North Africa, southern and central Europe, but is not rare in the United States.

Distribution: Nearctic: *Saropogon abbreviatus* Johnson (1903) [=*bicolor* Johnson (1903)]; *aridus* Curran (1930); *birdi* Curran (1931); *combustus* Loew (1874) [=*adustus* Loew (1874)]; *coquillettii* Back (1909); *dispar* Coquillett (1902); *fletcheri* Bromley (1934); *hyalinus* Coquillett (1904); *laparoides* Bromley (1951); *luteus* Coquillett (1904) [=*rufus* Back (1904)]; *pritchardi* Bromley (1934); *purus* Curran

(1930); *semiustus* Coquillett (1904) [=*albifrons* Back]; *solus* Bromley (1951).

Neotropical: *Saropogon carbonarius* Philippi (1865); *fraternus* Bigot (1878); *hyacinthinus* Bigot (1878); *nigrinasutus* Bigot (1878); *perniger* Schiner (1868); *pulcherrimus* Williston (1901); *senex* Osten Sacken (1887).

Palaearctic: *Saropogon aberrans* Loew (1857); *alternatus* Loew (1873) [=*pulverulentus* Wulp (1899)]; *atricolor* Loew (1857); *aurifrons* Macquart (1849); *axillaris* Loew (1851); *beckeri* Villeneuve (1922); *castaneicornis* Macquart (1838); *clausus* Becker (1906) [=*vosseleri* Becker (1906)], *clausus latecinctus* Becker (1906); *comosus* Loew (1869); *dasynotus* Loew (1870); *distinctus* Becker (1906); *ehrenbergii* Loew (1851); *elbaiensis* Efflatoun (1937); *eucerus* Loew (1847), *eucerus incisuratus* Wulp (1899); *flavicinctus* Wiedemann in Meigen (1820); *frontalis* Loew (1869); *fucatus* Loew (1869); *geniculatus* Loew (1869); *gigas* Becker in Becker and Stein (1913); *jugulum* Loew (1847) [=*brachypterus* Loew (1869), *micropterus* Loew (1869)]; *lamperti* Becker (1906); *leucocephalus* Meigen (1820) [=*scutellaris* Wiedemann (1820) in Meigen], *leucocephalus hispanicus* Strobl (1905); *lhoti* Séguy (1938); *longicornis* Macquart (1838); *luctuosus* Wiedemann (1820) [=*nigripennis* O. G. Costa (1844)], *luctuosus ticinensis* Bezzi (1892); *maroccanus* Séguy (1930); *melampygus* Loew (1851) [=*melanopygus* Bezzi (1903)]; *notatus* Loew (1869); *obesulus* Loew (1869), *obesulus sodalis* Loew (1869); *obscuripennis* Macquart (1849); *olivierii* Macquart (1838); *perlatus* A. Costa (1884); *philocalus* Séguy (1941); *pittoproctus* Loew (1873); *platynotus* Loew (1847); *pollinosus* Loew (1869); *rufipes* Gimmerthal (1847); *subauratus* Walker (1854); *varians* Bigot (1888); *vestitus* Wiedemann (1828) [=*aegypticus* Macquart (1838), *confluens* Loew (1851)]; *weissi* Bezzi (1910).

Ethiopian: *Saropogon rubriventris* Wulp (1899); *?tragicus* Wiedemann (1828).

Oriental: *Saropogon rubricosus* Bezzi (1917); *scalaris* Bigot (1878); *semirubra* de Meijere (1914); *specularis* Bezzi (1917).

Australian: *Saropogon antipodus* Schiner (1868); *chathamensis* Hutton (1901); *clarkii* Hutton (1901); *discus* Walker (1849) [=*hudsoni* Hutton (1901)]; *dissimulans* White (1917); *extenuatus* Hutton (1901); *fascipes* Hutton (1901); *flavofacialis* Hull (1956); *fugiens* Hutton (1901); *limbinervis* Macquart (1855); *nigritarsus* Hull (1956); *proximus* Hutton (1901); *rubescens* White (1914); *semirufus* Bigot (1878); *sergius* Walker (1849) [=*?festinans* Walker (1851) male]; *suavis* Walker (1857) [=*?gamaras* Walker (1849)]; *viduus* Walker (1849).

Country unknown: *Saropogon aphidis* Walker (1849).

Lycomax, new subgenus

Type of subgenus: *Saropogon flavofacialis* Hull, 1956.

Small flies; the females are considerably larger than males as a rule. The head is similar to *Saropogon* Loew but the palpus is obtuse and clavate as in the *Brachyrrhopala* Macquart complex and there are stout, long, anterior dorsocentral bristles on the mesonotum. The slender abdomen is cylindroid or tapered and the pleuron is pollinose and without pile or bristles except on the metapleuron. A microsegment is absent from the end of the antenna. The scutellum bears 1 pair of bristles. Length of males 11 mm., of females 16 mm.

Head, lateral aspect: Face slightly concave below, pollinose, and with 1 or 2 hairs, and a distinct, single row of epistomal bristles. First and second antennal segments with numerous, long, bristly setae or short bristles. Third segment widest in the middle and wider than the other segments; it has only a fused trace of a microsegment.

Head, anterior aspect: Front wider than the face, convergent above; ocellarium prominent with steep sides and several bristles.

Thorax: Mesonotum relatively bare. Acrostical setae are short, distinct, stout and widely separated from the dorsocentral bristles, which are long, stout with 3 or 4 in front of the transverse suture and a like number behind. Lateral bristles stout and prominent and 1 pair on the scutellum. Mesopleuron wholly pollinose, without pile or bristles except hairs on the propleuron and 2 or 3 short bristles on the metapleuron.

Legs: The legs are as in *Saropogon.* Hind femur without bristles, except 1 small, basolateral element; anterior basitarsus with denticles.

Wings: The wings are as in *Saropogon.*

Abdomen: The abdomen is as in *Saropogon* and the male terminalia similar to European representatives of that genus.

Genus *Aczelia* Carrera

FIGURES 76, 558, 1126, 1135, 1707, 1716, 1717, 1880, 2031

Aczelia Carrera, Papéis Avulsos Dep. Zool., São Paulo, vol. 12, p. 297, 1955. Type of genus: *Laparus argentinus* Wulp, 1882, by original designation.

Medium size flies with not very high, concave face. The third antennal segment is without microsegment, and bears a small spine at the apex. All cells of the wing open, including the anal cell. Separated from *Diogmites* Loew by the venation and form of the antenna and from *Allopogon* Schiner by the narrow face and well developed pulvilli. Scutellum with a pair of stout bristles. Females with acanthophorites and moderately long spines. These are faintly pollinose flies and therefore only moderately shining. From Australian genera related to the *Saropogon* Loew group they are separated by the dull surface and the multisetate legs. Length 16 to 21 mm.

Head, lateral aspect: The face is strongly concave across the middle, only moderately extended above and below and resembles *Austrosaropogon* Hardy. Occiput poorly developed in profile, with scattered, coarse hairs below and below the middle of the head slender bristles which never become stout and are continued mostly in a row to the vertex. Behind the vertex there is a patch of 3 bristles on each side. Proboscis moderately long and slender, with unusually high dorsal ridge and dorsally arched down to a comparatively sharp point. Palpus of two segments, the first excavated, the second clublike with an apical pore and many bristly hairs. The antenna is attached at the upper fifth of the head or higher and not greatly below the vertex; the eye rises above the vertex. The first segment is slightly longer than the second, about 2½ times as long as wide, the second segment at least twice as long as wide, or longer, both with unusually stubby setae located almost entirely laterally and dorsally. The first segment has a basilateral bristle; the third segment is not quite twice the combined length of the first two segments; it is a little widened towards the middle, attenuate distally, and ends in a transverse subcircular opening in which is located a short, stout spine.

Head, anterior aspect: The head is nearly twice as wide as high, the upper face about one-fourth the head width, slightly wider below. The face cover consists of very fine pubescence without pile. The mystax consists of 3 pairs of very stout, moderately long bristles. Subepistoma large, oblique, concave. Front large, shallowly concave, partly pollinose, with 3 or 4 unusually stout bristles along the ocular margin; 1 or 2 others and a patch of bristly setae on the sides of the vertex. Vertex very little excavated, slightly narrow; the ocellarium is small but high, with steep sides and between the ocelli 2 pairs of stout, anteriorly curved bristles. Front wider than upper face.

Thorax: The thorax is moderately high, the mesonotum comparatively high and gently convex, abrupt at each end and covered with very scanty, scattered, stout setae. There is a bare middle stripe with an acrostical row of setae. Near the middle begin rows of dorsocentral setae and in these rows are 2 or 3 stout, long, posterior bristles. Lateral bristles conspicuously stout and long. There are 2 anterior humeral bristles, 2 notopleural, 2 supraalar, 2 on the postalar callosity, and 1 pair on the flat scutellum. The metanotum is moderately large, the callosity with pubescence only. Halteres large. Pleuron largely bare except for pollen. Pronotum with quite long, slender bristles. Lateral propleuron with 2 stout bristles. Metapleuron with 3 or 4 very slender bristles and a few hairs. Postmetacoxal area membranous; only the lateral metasternum with pile; prosternum fully dissociated.

Legs: The legs are moderately long and comparatively slender, the hind femur perhaps a little more stout and narrowed at the immediate base. The femora and tibia bear moderately abundant but rather scattered, evenly distributed, sharply appressed setae. Hind femur with a very weak, small bristle at the apex ventromedially and no others. Hind tibia with stout, rather short bristles, 4 dorsolateral, 3 dorsomedial, 4 longer ventrolateral, and ranked setae medially on the distal half; apex with 6 bristles. All tarsi slender; first tarsal segment as long as the next 3 segments. Middle femur with a stout, posterodorsal, apical bristle and a quite basal, ventral bristle. Anterior femur only with a weak, apical, posterodorsal bristle. Middle tibia with 3 anterodorsal, the last one long, spikelike and distal; on it are 3 minute, posterodorsal, 3 similar posteroventral bristles, and 2 very conspicuous, long, stout, ventral bristles. Anterior tibia with 3 small anterodorsal, 5 minute posterodorsal, 4 similar posteroventral, and 2 long, stout, ventral bristles. Apex of its tibia with a short protuberance and a very stout, strongly bent but not twisted spine apposed to a basitarsal swelling with many denticles. Claws long, sharp; pulvilli well developed; empodium swollen at the base.

Wings: The wings are tinged with brown along the veins. Marginal cell open by less than its maximal width, the basal expansion of the second submarginal cell is wholly in front of the third vein. Posterior cell widely open, anal cell quite widely open; alula large; ambient vein complete. Wing distally is wholly villose. The upper section of the anterior intercalary vein is nearly as long as the medial crossvein. Posterior crossvein reduced or absent.

Abdomen: Only the first segment of the abdomen is as wide as the mesonotum. This segment is comparatively long with the metathorax greatly reduced. Surface cover consists of quite scanty, minute, flat appressed setae, a few long hairs on the sides of the first segment only and this segment laterally has a row of 6 spikelike bristles. Females with eight segments, the last segment at most is only half as long as the seventh. Female terminalia with acanthophorites and 6 pairs of bluntly rounded, spoonlike spines. Eighth sternite thin, troughlike, but not indented or impressed; the apex is plane and not cleft.

Distribution: Neotropical: *Aczelia argentinus* Wulp (1882); *infumatus* Lynch Arribálzaga (1880).

Genus *Archilaphria* Enderlein

FIGURES 528, 1129, 1138

Archilaphria Enderlein, Wiener Ent. Zeitung, vol. 33, p. 151, 1914. Type of genus: *Archilaphria ava* Enderlein, 1914, by original designation.

Small, more or less hump-backed flies with decumbent abdomen. The marginal cell, all posterior cells and the anal cell are quite widely open. Proboscis quite short. The face is short, with 1 row of bristles on the mystax. The apex of the anterior tibia bears a distinct, slender, transversely bent, black spine. The genus is allied to *Saropogon* Loew; the third antennal segment ends bluntly without any microsegment or spine. The femora are stout but not swollen and lack bristles. Tibial bristles, however, are stout. Mesonotal bristles are almost absent. Length 10 to 12 mm.

Head, lateral aspect: The head is short, strongly flattened in the front; the face is quite short throughout and nowhere produced. Occiput poorly developed both above and below, with scattered, coarse, ventral hairs and at most with a few, very weak, dorsal bristles, scarcely more than hairs. Proboscis short, robust with a basal, dorsal ridge and a few, fine, long hairs ventrally on the basal half. Palpus clearly of two segments, the first segment excavated, the second cylindrical, obtuse, with only fine hairs. The antenna is attached at the upper fourth of the head and is slender. The first two segments are moderately elongate, the first 1½ times as long as the second, and bear only a few minute setae above; the first segment has 2 or 3 fine, bristly hairs below, the second a single, slender, apical, ventral bristle; third segment about twice the combined length of the first two.

Head, anterior aspect: The width of the head is about 1¾ times the height. The face is wide and approximately two-fifths the head width. It has nearly parallel sides or very slightly widened below and bears dense, appressed, pale, shining, ventrally directed, long micropubescence. There are a few fine, scattered hairs over the face and a single transverse row of bristles at the epistomal margin consisting of 10 bristles. Front wide, shining with 2 or 3 fine hairs laterally. The vertex is but little excavated, the ocellarium moderately large but low with a pair of short, black bristles between the posterior ocelli.

Thorax: The thorax is short and rather high. The short mesonotum is moderately high and rather strongly arched. It bears dense, appressed, setate, undifferentiated pile. Only near the scutellum there are a few, fine, longer dorsocentral hairs. Bristles greatly reduced, short and weak. There are 2 such weak elements on the notopleuron, 3 or 4 linearly above the wing, and on the scutellar margin are 3 pairs of quite short but moderately stout bristles. The scutellum is somewhat convex and rugose, with a few coarse hairs. Lateral callosity of the metanotum pollinose only. Pronotum with a few quite slender bristles. Posterior mesopleuron, middle sternopleuron and pteropleuron bare. Metapleuron with a row of weak bristles; remainder of pleuron appressed micropubescent, or pollinose. Lateral metasternum with pile. Postmetacoxal area membranous; prosternum fully dissociated.

Legs: All the femora are stout without being swollen. The hind femur is slightly longer. They lack bristles but bear very fine, appressed, shortened hairs. Hind tibia stout with stout bristles. There is near the base laterally a transverse group of 3 bristles; there is a partially doubled ventrolateral row of longer bristles and there is a stout, dorsolateral bristle on the apical third besides a patch of 4 or 5 spinous setae dorsolaterally at the base of the tibia. Dorsomedially there is a row of 6 bristles, several of them long. Medial surface with dense setae. Hind basitarsus rather slender but strongly curved outward so that the medial surface is concave. It is as long as the next 3 segments. Middle tibia with 5 prominent, anterodorsal bristles, 3 or 4 short, posterodorsal and 4 long, posteroventral bristles. Anterior tibia only with 4 or 5 small, short, posterodorsal bristles, 5 longer posteroventral bristles. The apex ventrally bears a basally stout, black, sharp spine bent transversely backward. Basitarsus without modification. Claws slender, curved from the base and sharp. Pulvillus long and narrow. Empodium short but stout.

Wings: The marginal cell is narrow apically and quite widely open. The second submarginal cell is narrow at the base, widened only in front of the third vein; the anterior branch of this vein ends at the wing apex. The posterior branch ends well behind. First 3 posterior cells open maximally. Upper anterior intercalary vein nearly as long as the medial crossvein. Discal cell wide; the anterior crossvein enters the discal cell at or nearly at the middle. Posterior crossvein unusually long. Fourth posterior cell only slightly narrowed. Anal cell open, whole wing villose, including the basal cells. The third vein forks a little beyond the end of the discal cell. Alula quite narrow; ambient vein complete.

Abdomen: The abdomen is robust; at the base it is nearly or quite as wide as the mesonotum with the sides parallel to the end of the third segment, a little narrowed beyond and obtuse apically. The surface is coarsely punctulate with fine, appressed setate pile. The first segments laterally have some slightly longer, coarse, nearly erect hairs. Sides of first segment with 3 or 4 quite weak bristles. The second segment is rather long with a distinct, subbasal furrow or transverse depression at the basal fourth. Females with 6 well developed tergites; the seventh is narrowed, only a fourth as long as the sixth; the eighth is concealed beneath and within the seventh, and the female terminalia are quite recessed but bear short acanthophorites, on each side of which is a row of minute, short, inconspicuous spines.

Distribution: Palaearctic: *Archilaphria ava* Enderlein (1914).

Genus *Tocantinia* Carrera

FIGURES 564, 1128, 1137

Tocantinia Carrera, Papéis Avulsos Dep. Zool. São Paulo, vol. 12, no. 2, p. 102, 1955. Type of genus: *Dasypogon miser* Walker, 1854, by original designation.

The following is Carrera's description in translation:

> Head as wide as the thorax; face plane and slightly salient in the clypeal region and at the base of the antenna. The height of the face is three-fourths the height of the eyes and it is a little wider in the buccal margin. Mystax composed of few bristles located in the inferior margin of the face; front slightly concave in the middle; ocellar callosity with a very few, small bristles; occipital bristles developed; proboscis sharply pointed. Palpus with the second segment fusiform and a little smaller than the first antennal segment; it bears small, slender bristles. [*Antenas com o primeiro articulo duas vezes maior que o comprimento dos basais reunidos.*] Antenna without style, but with a minor apical concavity where is inserted a microscopic spine. Prosternum reduced to two small plates between the anterior coxae. Surface of mesonotum densely pollinose with the lateral and dorsocentral bristles well de-

veloped; the row of dorsocentral bristles is initiated well before the transverse suture. Scutellum with a pair of stout, large, marginal bristles. Region of postscutellum without lateral pile. Legs slender, with few bristles. The apical spine of the anterior tibia is sharp like a stiletto. Wings with the fourth posterior cell open. Abdomen slender and elongate. Genitalia of male globose; genitalia of female with spines.

This genus is close to *Macrocolus* Engel, and in certain respects also close to *Mirolestes* Curran and *Austenmyia* Carrera. It is distinguished from all of these others by the presence of bristles on the margin of the scutellum. From *Macrocolus* it is separated by the great development of dorsocentral bristles and by the presence of dense pollen over the body which leaves it completely without lustre; from *Mirolestes*, by the presence of the open fourth posterior cell and by the form of the antenna; and from *Austenmyia*, by the length of the first segment of the antenna, two times larger than the second, and by the form of the third antennal segment.

Distribution: Neotropical: *Tocantinia miser* Walker (1854).

Genus *Austenmyia* Carrera

Figures 519, 1123, 1132

Austenmyia Carrera, Papéis Avulsos Dep. Zool. São Paulo, vol. 12, p. 104, 1955. Type of genus: *Austenmyia amazona* Carrera, 1955, by original designation.

The following is Carrera's description in translation.

> The head is a little wider than the thorax. The face is plane and in extent three times the surface of the front, and without pile. The mystax is composed of some fine bristles disposed in a transverse line over the upper margin of the buccal cavity; proboscis cylindrical. Palpus with the second segment developed, and fusiform and in length one-fourth as long as the total length of the proboscis. The ocellar callosity has 2 small bristles. Antenna with the first two segments alike in length; each of these segments are as long as the length of the last segment of the palpus. Third antennal segment with the same length as the basal two segments of the antenna together; at the apex it has a dorsal concavity and the upper edge of this concavity sharp and spine-like. Prosternum reduced to 2 plates between the anterior coxae. Mesonotum with lateral and dorsocentral bristles well developed; the dorsocentral bristles make two rows of seven elements each that begin in the anterior quarter of the prescutum. Scutellum without bristles; postscutellum without pile on the lateral callosity.
>
> Legs slender and elongate; apical spine on the anterior tibia small. Wings with the fourth posterior cell and anal cell open. The abdomen is a little larger at the base and two times as long as the thorax. The genitalia of the female is more or less globose with recurved spines.
>
> This genus presents characters intermediate between *Macrocolus* Engel and *Mirolestes* Curran. It is distinguished from *Macrocolus* by the form of the antenna and by the cover of the body, opaque and without lustre; from *Mirolestes* it is distinguished by the open fourth posterior cell, by developed dorsocentral bristles and the pile of the ocellar callosity.

Distribution: Neotropical: *Austenmyia amazona* Carrera (1955).

Genus *Araiopogon* Carrera

Figures 555, 1157, 1166, 1762, 1853, 1858

Araiopogon Carrera, Arq. Zool. São Paulo, vol. 7. p. 122, 1949. Type of genus: *Dasypogon gayi* Macquart, 1838, by original designation.

Medium size flies of short, reduced pile, the bristles short and stout but chiefly confined to the tibiae and tarsi and reduced upon the face and mesonotum. Closely related to *Saropogon* Loew. The epandrium or ninth tergite of the male is developed into an upper forceps instead of being split only along the medial line. Length 11 to 15 mm.

Head, lateral aspect: The face is very short and scarcely visible on the upper portion, a little more conspicuous below due to the recession of the eye; the whole face is vertical and plane and rather short in length. The eye is somewhat more narrow below, gently convex behind, more strongly in front, longest at the level of the antenna. The occiput is rather prominent, but its thickness increases medially. The pile of the occiput everywhere bristly, the lower pile abundant, rather long and continued as a wide, subocular band up to and across the upper portion of the head behind the vertex. The more anterior elements on the upper half are developed into rather stout, curved bristles and those behind the vertex are proclinate. The proboscis is strongly compressed laterally with plane or slightly concave margin ventrally, high and strongly arched beginning at the basal third at which point the medial ridge is high and conspicuous; the base is considerably reduced in height; on the outer dorsal aspect the proboscis is tapered down to an unusually small, rounded point. From the upper aspect it is tapered to the middle, from which point to the base. The apical pile is fine and scanty; in the middle below is a tuft of long, stiff hairs in a close set row of 6, and additional long hairs are scattered basally below. Palpus clearly of two segments, the second segment frequently held at a strong angle; first segment is excavated, the second microporate, densely covered with many stiff bristles on all sides except medially and reaching almost to the apex.

The antenna is attached at the upper third, a little longer than the head and slender, the first segment slightly longer than the second, the third segment 1½ times as long as the first two, slightly widened towards the middle; beginning at the outer fifth it is gently tapered to a blunt, oblique, truncate apex and the apex bears a spoon-shaped microsegment which carries a short, dorsal spine. Pile of the first segment abundant, long and bristly, especially below and laterally; second segment with fewer similar bristles but with 1 or 2 which are longer and stouter. Sometimes the microsegment of the antenna is held at an oblique angle and instead of being spoon-shaped is short and cylindrical, oblique at its apex and carrying a spur.

Head, anterior aspect: The face below the antenna is more than a third the head width and divergent below.

The subepistomal area is large, oblique and fully as long as the face, slightly concave and bare. Face pubescent, apilose, with a single row of 4 pairs of very stout, curved, rather long, anteriorly directed bristles on the epistomal margin; some 2 or 3 pairs of finer bristles may be added below these in some species or the bristles may spread out over the lower third of the face in 3 or 4 rows and including the more slender elements may consist of at least 20 pairs. The front is pollinose laterally with 2 longitudinal rows of numerous, long, fine bristles, the outer row subocular in position; the front is somewhat dilated in the middle and is convergent again at the vertex; the vertex but little excavated, the ocellarium low, ocelli large and bears 3 pairs of slender bristles across the middle and 3 postocellar bristles. Eyes rather strongly enlarged centrally.

Thorax: The thorax is almost everywhere bare and shining; a little humeral and prehumeral pubescence and some anterodorsally may be present on the mesopleura. Pile of mesonotum moderately long, distinctly bristly, sharp and more or less curved backward; similar bristly pile on the humerus, but longer. The following complement of bristles, long and stout is present in the type of genus: 1 posthumeral, 2 notopleural, 2 supraalar, 2 postalar and 2 pairs of scutellar bristles; in some species 1 pair, in others 4 pairs. In all species the scutellum is flat and at the base is fused smoothly into the mesonotum. Propleuron with dense, long tufts of stiff pile ventrolaterally and a band of stiff pile preceded by a row of long, moderately stout bristles on the pronotum. Other areas of pleuron apilose except the hypopleuron has 1 or 2 hairs below and the metapleuron with a narrow band of long, slender bristles and some finer hair. Metanotal slopes micropubescent only; lateral metasternum with pile divided in the middle by a vertical crease, ventral metasternum with a narrow band of chitin and numerous long hairs. Postmetacoxal area membranous; tegula with bristles.

Legs: All the femora are distinctly stout without being swollen. Pile on the femora dorsally appressed, rather short, fine and setate, becoming much more scanty and changing to fine hairs below but moderately abundant ventrally on the anterior femur. In the type of genus the following complement of bristles is present, most of them short but quite stout: on the hind femur 1 lateral at the base, no apicals; its tibia with 3 dorsomedial at the basal fourth just before and just after the middle, 3 lateral, 2 ventrolateral bristles with an additional bristle close to the base. Brush of setae present beginning near the base. Midfemur with only long, bristly hair below; its tibia with 5 anterodorsal, 4 much shorter posterodorsal, 5 posteroventral, and 2 rather long, stout, oblique ventral bristles at the middle and beyond. Anterior femur similar to the middle pair; the tibia with 5 exceptionally stout, short, anterodorsal, 5 minute, posterodorsal, 4 posteroventral, and 1 ventral distal bristle. The apex has 2 long, stout dorsal, 1 posterior, 2 anterior, 2 ventral, and a conspicuous stout spine arising from the protuberance and with basitarsal denticulae. All tarsi end in stout claws, sharp, curved chiefly at the apex; long pulvilli and moderately long empodium which is strongly swollen cylindrically at the base.

Wings: The wings are broad; marginal cell widely open; anterior branch of the third vein ends shortly above the wing apex, posterior branch a short distance behind; first posterior cell widely open, fourth narrowed slightly; anal cell widely open; alula of moderate length; ambient vein complete; middle vein at the end of the second basal cell is short.

Abdomen: The abdomen is rather robust and more or less flattened and as wide as the mesonotum; shining and bare, occasionally with narrow, posterior pollinose fascia; the pile is moderately abundant, but minute and setate and becoming moderately long and quite fine along the lateral margins. Sides of the first tergite with 2 to 3 moderately stout bristles. Male with seven tergites, the seventh reduced and only a third to a fifth as long as the sixth tergite. Female with eight tergites, the last two each slightly reduced, the eighth may be less than half the length of the sixth. Male terminalia moderately conspicuous, in the type of genus rotate nearly a fourth and with the epandrium divided by a V-shaped notch in the type of genus which is flared rather widely; the 2 halves are quite short and inconspicuous. The hypandrium below is extremely short, leaving the lower structures open and cuplike. In some species these structures are split to the base but not flared. Female with 6 pairs of stout, long, pointed and spoon-shaped spines upon the acanthophorites. Last sternite compressed laterally to a ventral ridge which is split to the base into 2 appressed flaps. Wings a little longer than the abdomen.

Distribution: Neotropical: *Araiopogon cyanogaster* Loew (1851) [=*pictus* Philippi (1865)]; *gayi* Macquart (1838) [=*chalybeiventris* Loew (1851)]; *fulvicornis* Macquart (1849).

Apothechyla, new genus

Figure 1852

Type of genus: *Dasypogon carbo* Walker, 1851.

Robust flies with greatly reduced pile. The antenna is elongate; the third segment is without microsegment and has an apical pit with concealed spine. Lateral propleuron with very stout bristles. Scutellum also with stout bristles. In the males the epandrium is fully cleft and widely separated. Length 15 to 18 mm.

Head, lateral aspect: The head is of medium length, the face is extended for a short distance beneath the antenna and is somewhat more extensive ventrally, but the whole face is plane in profile. Cheeks are quite short. Occiput prominent but only sublaterally; it becomes more extensive toward the middle of each half. The occiput bears rather abundant, coarse, long pile below; distinctly stout bristles begin near the lower fourth of the head and become very prominent along the middle and above, and are continued behind the vertex. About 20 pairs of bristles are present; they are set in a single row quite deeply behind the eye, with bristly pile in front. Proboscis prominent, rather slender, except for the high, dorsal ridge or keel, which is reduced near the apex. Apex rather pointed, with fine pile which is continued below on the whole outer half; the basal half bears numerous, fine, long hairs. Upper surface of proboscis arched and convex. Palpus large, conspicuous, the first segment excavated, the second longer, robust, and bearing numerous bristles and a large, apical pore. The antenna is long and rather slender, longer than the head; the first two segments are rather short, subequal, each a little longer than wide, each with short, appressed setae above and several stout but quite short bristles ventrally. Third segment barely wider than the second and slightly narrowed on the outer fourth. The apex has an open pit bearing a concealed spine.

Head, anterior aspect: The head is wide with the width almost twice the height and the eyes strongly flattened in front. The face is wide, at least a fourth the head width and slightly widened below. Surface of face without pile and densely covered with exceptionally fine, appressed, silvery pubescence. There is a partially doubled, transverse row of 14 stout, both white and black, moderately long bristles above the epistoma; no hairs or bristles present along the sides of the epistoma. The front is slightly wider than the upper face with on each half 2 distinct groups of moderately long, slender bristles, 1 group submarginal and separated from the more medial group by a shallow fossa. Vertex only moderately excavated, with slanting sides; the ocellarium is large, also with sloping sides, and containing 2 pairs of rather long, stout bristles between the posterior ocelli, and behind these 2 or 3 pairs of setae. The vertex is slightly narrowed.

Thorax: The thorax is comparatively long; the mesonotum is slightly convex, more so behind and abrupt anteriorly. It presents a very bare appearance due to the scanty, minute, suberect setae and almost complete absence of pile. The whole surface as well as the pleuron is thinly pollinose, with pubescence developed only on the central part of the pleuron. There is a single acrostical row of many stout, short setae extending almost to the pronotum. Also dorsocentral setae are numerous, with 1 or 2 short, stout bristles on the posterior part of the mesonotum. Humerus with 3 short, stout bristles anteriorly and setae. Lateral bristles exceptionally stout and long. There are 2 notopleural bristles, 2 supraalar, 2 on the postalar callosity, and 1 crossed pair on the scutellum. The scutellum is large with a flat, pollinose disc, and a few minute hairs. Pronotum with 6 pairs of moderately stout, long, attenuate bristles; the ventrolateral portion immediately above the front coxa has a very stout bristle. Lateral metanotum with a long, oblique bulla and pollen. Metapleuron with a vertical row of 4 stout and long and 2 weak bristles. Pleuron otherwise without pile, except for a curious, small patch of dense, erect setae on the anteriormost portion of the mesopleuron and some setae and hairs on the upper lateral part of the propleuron. Lateral and ventral metasternum with pile; postmetacoxal area membranous; prosternum dissociated; anterior coxa with 6 ventral and 3 dorsal bristles; middle coxa with 8 ventral bristles; posterior coxa with 1 lateral bristle.

Legs: All the femora and tibiae are exceptionally stout; the first 4 femora are perhaps a little swollen throughout most of their length; they are covered throughout with scanty, appressed, short, stout setae which are a little more numerous dorsally but evenly distributed on the tibiae and tarsi. All bristles are quite stout, the hind femur bears 1 lateral bristle at the basal third, 1 much smaller bristle proximal to it, no others. Hind tibia with 1 small dorsolateral bristle at the base, 2 stout lateral bristles at basal and apical third, 3 similar dorsomedial bristles, 2 to 3 equally stout, prominent, ventral bristles on the outer half, and a small ventromedial bristle at the base. Hind basitarsus as long as the next three segments. Middle femur with a single, exceptionally stout bristle posteriorly near the apex, another shorter bristle anteriorly near the base. Anterior tibia with 2 small, basal and 1 very stout, conspicuous, anterior bristle located near the middle with 2 small, dorsal bristles on the basal half, a small, anteroventral bristle near the base and 6 medium size, stout, posteroventral bristles, besides 2 exceptionally striking, very stout, long, ventral bristles located at the middle and beyond. Anterior femur with a small bristle posteriorly near the apex, 2 weak, short bristles ventrally near the base. Anterior tibia with 6 short, stout, anterodorsal bristles, 3 similar, posterodorsal elements, 5 short, posteroventral bristles, and a single, conspicuous, long, distal and ventral bristle. The terminal bristles are rather far removed from the apex and the apex bears a large, short, distinct protuberance, with a basally stout spine. Basitarsus without swelling but with numerous, blunt denticles. Claws stout, long, sharp; the pulvillus quite long and slender; the long, very stout empodium bladelike.

Wings: The wings are tinged with brown; the marginal cell is open by considerably less than its maximal width. The fourth posterior cell is closed and stalked or very narrowly open. The anal cell is closed in the margin; the alula is large; ambient vein complete. The upper anterior intercalary vein is long and the posterior crossvein almost eliminated.

Abdomen: The abdomen is broad, robust, as wide as the mesonotum and with parallel sides to the end of the fourth segment. It is covered with numerous, quite small, stout, appressed setae. Pile is absent, except anterolaterally on the first segment. Posterolateral margin of first segment with 5 or 6 spikelike or spinous bristles. Males with seven tergites; the seventh is two-thirds as long as the sixth. Females with eight tergites and the eighth half as long as the seventh. Male terminalia quite short, the epandrium is cleft to the base and rather divergent and widely separated. Each half is small and short. The proctiger is very broad and short. The largest element is the convex gonopod which extends a little beyond the proctiger and has a medial, scoop-shaped process. Hypandrium moderately large, convex and rounded posteriorly. Female terminalia with acanthophorites and 6 pairs of long, bluntly rounded, spatulate, spoon-like spines.

Distribution: Australian: *Apothechyla carbo* Walker (1851). I have seen an additional, undescribed species which belongs in this genus.

Stizochymus, new genus

Figures 155, 560, 1087, 1096, 1704, 1705

Type of genus: *Dasypogon salinator* Walker, 1849.

Large, stout flies with tapered, cylindroid abdomen and long, stout bristles. The base of the second posterior cell is quite strongly arched and wide. The fourth posterior cell is open but narrowed. Face strongly convex above with a prominent, ventral, transverse crease as in *Microstylum* Macquart. Pile absent and mystax restricted to 2 close-set rows of bristles above the epistoma. The dorsocentral bristles before the suture consist of fine setae. Scutellum with stout, long bristles. Male epandrium short and cleft to the base. Third antennal segment without microsegment. These flies differ from *Neosaropogon* Ricardo in the radically different character of the palpus and the protibial protuberance and spine, besides differences in the venation and antenna and scutellum. Length 26 mm.

Head, lateral aspect: The face is moderately prominent, distinctly convex above, and slightly concave on the lower fifth, which is set apart by a shallow, transverse crease. The occiput is moderately prominent but only at some distance from the eye margin, to which it slopes very gradually and the pile and bristles are likewise rather deep-set medially. Actual ocular portion of the occiput is concave laterally and above. The pile is fine to coarse, moderately long and abundant on the lower fifth of the head, with a row of weak bristles laterally and some stronger elements dorsally and deeply placed behind the vertex. Proboscis large, compressed laterally, with a strong medial ridge dorsally on the basal half. The lower surface is nearly plane, the immediate apex dorsally is tapered to a blunt point and bears bristly hairs on either side and a row of stiff hairs divergent on each side of the ventral margin and confined to the outer third. Sides of the basal portion with some very long hairs. Palpus clearly of two segments; first excavated, second short, robust, obtusely rounded at apex, with many, long, slender bristles and bristly hairs on all sides. The antenna is attached at the upper third of the head; the first segment is about twice as long as wide, with setae above and below; the second is a little longer than the first, with numerous setae above and 3 short and 3 stout, longer, apical, ventral bristles. Third segment as long as or a little longer than the combined length of the first two segments, slightly widened in the middle and without a microsegment at the apex.

Head, anterior aspect: The head is not quite twice as wide as high, the face about one-fourth the total head width and very slightly wider below. Cheeks rather short, the concave subepistoma is large. The face surface consists of very dense, appressed, pale micropubescence with pile absent. There are 2 rows of quite long, stout, yellowish white bristles just above the epistoma. Together they contain about 26 elements, a few of which are slender. They extend nearly to the end of the proboscis and there are none along the sides of the epistoma. Front large, shallowly concave, densely pubescent, without pile or bristles and slightly wider than the upper face. The ocellarium is moderately large, with quite large ocelli, steep sides, enclosed pollen and a pair of stout, pale bristles directed forward and attached between the posterior ocelli; behind the ocelli are a few setae, and the sides of the vertex have 3 stout setae each. Anterior eye facets strongly enlarged.

Thorax: The thorax is large, with the mesonotum moderately high, abrupt anteriorly, and only slightly convex. It is also abrupt in front of the scutellum. Disc of scutellum pollinose, mostly dark with extensive, bare areas laterally. There is a widely segregated row of acrostical setae; dorsocentral setae are short over the middle, scattered anteriorly toward the sides and include posteriorly 2 or 3 quite long, stout bristles in each row. Lateral mesonotal bristles especially stout and long. There are 3 or 4 notopleural elements in a row extending towards the humerus and 3 supraalar, with the first element longest and preceded by a patch of erect, small bristles. Postalar callosity with 2 very large and 1 small bristle and the scutellar margin with a pair of widely separated, quite stout, long bristles. Scutellum flat, pollinose with a single, small bristle on each side near the base. Metanotal callosity protuberant and only pollinose. Pleuron densely pollinose, mostly without pile. Pronotum with 6 pairs of weak bristles, shallowly sulcate in the middle and deeply separated from the posterior section. The lateral propleuron has 2 stout bristles and numerous, long hairs. Humerus with coarse hairs only. Metapleuron with a vertical row of 9 bristles. Postmetacoxal area membranous. Prosternum fully dissociated. Anterior basalare with numerous, bristly hairs.

Legs: The femora are quite stout without being swollen and are only moderately long. The hind femur is slightly wider distally. Dorsally the femora bear dense, appressed setae or bristly hairs but tend to be bare on the posteroventral surface, with only scattered hairs. Bristles stout, not very long, few in number. The hind femur bears 3 lateral bristles, 2 of them before the middle, and near the apex is 1 dorsomedial bristle. Hind tibia has longer bristles, 2 dorsolateral, 1 of which is situated at the basal third, the other at the distal third; quite close to the base are 2 nearly dorsal bristles and at the middle a prominent, dorsomedial bristle; ventrally on the outer third are 2 stout bristles. Apex of tibia with 1 dorsomedial, 1 ventromedial, and 4 black ventral bristles. Hind basitarsus stout, slightly longer than the next two segments. All tarsal bristles numerous, quite stout and long. Middle femur with only a conspicuous, stout, posterodorsal bristle near the apex, and a much smaller one behind. This tibia bears 4 anterodorsal bristles, of which 1 at the middle and 1 beyond are conspicuously long and spikelike and matching each is a similar bristle ventrally. There are also 2 short posterodorsal bristles near the middle.

Anterior femur quite like the middle femur; its tibia has 5 short, stout, anterodorsal bristles, 4 still shorter posterodorsal, 4 posteroventral and 1 very long, distal, ventral bristle. Bristles of the apex set back from the end of the tibia. The apex bears a short, stout protuberance with very stout, basally swollen, curved, blunt, black spines of no great length; it is apposed to a basitarsal elevation which bears 10 or 12 small, conical denticles. Claws stout, long, only moderately sharp, the pulvilli quite long and spatulate, the empodium long, and gradually swollen toward the base.

Wings: The wings are lightly tinged with brown. Marginal cell open, by considerably less than its maximal width. Anterior branch of the third vein ends well above the wing apex, the posterior branch far behind. First posterior cell fully open, base of second posterior cell strongly widened and arched. Medial crossvein long, paralleling the wing margin. Fourth posterior cell narrowed. Anal cell closed to the margin, posterior crossvein almost wanting. Alula large, ambient vein complete.

Abdomen: The abdomen at the base is as wide as the mesonotum, reduced in width at the end of the first segment and slightly tapered beyond to the end of the abdomen, comparatively elongate and cylindrical. Abdomen covered with rather dense, short, subappressed setae and short, coarse pile laterally on the second segment and much longer pile laterally on the first segment. Posterolateral margins of first segment with 5 or 6 quite stout, long bristles. Males with eight segments, but the eighth tergite is short and confined to the left side and below. Male terminalia almost completely rotate; the hypandrium large, triangular and a little convex on its dorsally turned surface and with some posterior, bristly pile. Epandrium fully cleft but apposed towards the base and with numerous bristles and bristly hairs posteriorly and some setae on the upper surface. Gonopod quite prominent, thick, laterally convex and conspicuous, with dense, long, pale bristles and bristly pile, especially on the posterior half. It bears posteriorly a stout process which is more or less bent upward and curves toward the medial line.

Distribution: Australian: *Stizochymus salinator* Walker (1849).

Genus *Austrosaropogon* Hardy

FIGURES 77, 179, 533, 592, 1161, 1170, 1744, 1760, 1761, 1804

Austrosaropogon Hardy, Ann. Mag. Nat. Hist., ser. 10, vol. 14, p. 11, 1934. Type of genus: *Austrosaropogon claviger* Hardy, 1934, by original designation.

Austrosaropogon Hardy has 1 subgenus, *Daptolestes*, new subgenus.

Polished, shining flies, especially so on the abdomen and legs. Abdomen is slightly clavate, the male terminalia large and prominent but with aedeagus relatively concealed within the open, ventral cavity, which is partly rotate. Female acanthophorites and spines not recessed but the spines are quite short. Mesonotum low and elongate. Antenna relatively short, the third segment with a short, cylindrical microsegment and central spine. The palpus is small and attenuate and not clavate, and the upper intercalary vein at end of discal cell is well developed. Length 12 to 18 mm.

Head, lateral aspect: The face is moderately prominent above and below, with a distinct concavity across the middle. The occiput is uniformly developed but only sublaterally. It bears long, fine pile ventrally and weak bristles along the middle and upper part. Behind the vertex there are only 2 comparatively slender bristles on each side. Proboscis comparatively long, depressed at the base with a prominent dorsal ridge and the apex tapered to a blunt point. The palpus is of two segments, the first excavated, the second robust and a little narrowed at base, and apex with a large, apical pore and numerous, bristly hairs. The antenna is attached only a little below the plane of the vertex. Antenna elongate, considerably longer than the head and slender. The first segment is 2 or 3 times as long as wide, longer than the second, which is nearly twice as long as wide; the third is not quite twice the combined length of the first two. Third segment is of nearly uniform width and bears at the apex a short, spoon-shaped microsegment with a concealed spine. Both basal segments have long, fine setae dorsally. The first segment has 10 long, slender bristles laterally and below; the second has 2 or 3 such bristles.

Head, anterior aspect: The head is about 1¾ times wider than high with the face a third the head width and barely wider below. Face densely pale pubescent, with 7 or 8 fine, scattered hairs on the lower half and a row of weak bristles or only bristly hairs across the epistoma. Front moderately large; nearly bare, without ocular pile or bristles but with a narrow submedial band containing 4 slender, bristly hairs and a few other hairs. Vertex but little excavated; the ocellarium is low with a pair of bristly hairs behind the ocelli and 1 or 2 minute hairs between the ocelli. Anterior eye facets rather strongly enlarged.

Thorax: The thorax is comparatively long; the mesonotum is low and gently arched with a wide, medial, bare stripe divided by acrostical pubescence and microsetae. Lateral mesonotum with stripes of pollen or pubescence. Humerus with only a few, fine hairs; lateral bristles are moderately well developed and consist of 1 notopleural, 4 to 6 supraalar, 1 on the postalar callosity, and 1 pair on the scutellum. The scutellum is not quite flat, pollinose, without pile, and transversely wrinkled. Metanotal callosities pubescent only. Pleuron densely micropubescent or pollinose with a vertical band of fine pile on the mesopleuron and sternopleuron situated posteriorly. The neck is unusually long; pronotum with fine hairs. Metapleuron with 3 or 4 quite slender bristles, postmetacoxal area membranous; lateral metasternum with long pile; prosternum fully dissociated.

Legs: The legs are polished and rather bare, with quite scanty, fine, appressed setae; they are often pale with black bands. The hindlegs are somewhat longer, the hind femur distinctly swollen distally and bearing 4 lateral bristles and at the apex 1 dorsolateral and dorsomedial bristle. Hind tibia with 3 stout dorsolateral, 4 similar dorsomedial bristles and 2 anteroventral bristles confined to the outer half. Ventral surface with ranked setae on the distal half. Hind basitarsus not stout, perhaps not quite as long as the next three segments. Middle femur has 2 anterior bristles, 1 longer posterodorsal bristle near the apex, and at the apex on each side a minute bristle. This tibia bears 2 quite conspicuous, long anterior, 4 posterior, and on the distal half 2 spikelike, long, ventral bristles. Anterior femur with a posterodorsal bristle near the apex and anteriorly 2 small apical bristles; its tibia bears 5 quite short anterodorsal, 4 almost equally short posterodorsal, and 2 long, distal, posteroventral bristles. Apex with a posteroventral, stout, slightly curved spine without protuberance; the basitarsus has denticles. Claws slender, sharp; pulvilli well developed; empodium fine, short, quite swollen at the base.

Wings: The wings are tinged with brown, marginal cell widely open, the furcation of the third vein well beyond the discal cell, and the basal expansion of the second submarginal cell lies above and below the third vein equally. Posterior crossvein long, all posterior cells maximally open, anal cell open. Alula narrow, ambient vein complete.

Abdomen: The abdomen is moderately broad, and at the base nearly or quite as wide as the mesonotum and slightly clavate, so that the third and fourth segments are a little wider. Third segment with a prominent, subbasal crease on the basal third. On the sides of the first segment are 3 stout spines, and near the end of the second are 1 or 2 stout bristles or weak spines laterally. Abdomen usually orange and black or wholly black and sparsely covered with appressed setae arising from microtubercles. Males with seven tergites, the seventh much shorter than the sixth. Females with eight tergites, the eighth half as long as the seventh. Male terminalia partly rotate, the epandrium is quite simple, undivided, the hypandrium large, and the gonopod also prominent with toothed, apical processes. Proctiger conical. Female with acanthophorites and 6 or 7 pairs of rather small, blunt spines, besides some spinous bristles ventrally. Eighth sternite with a narrow, posterior cleft, the whole plate flat.

Distribution: Australian: *Austrosaropogon claviger* Hardy (1934); *nicholsoni*, new species.

Daptolestes, new subgenus

Type of subgenus: *Daptolestes nicholsoni*, new species.

Medium size flies related to *Austrosaropogon* Hardy and like this genus with a pronounced concavity across the middle of the face. The abdomen is capitate, with a strong, basal constriction; scutellum with only slender, stiffened hairs. Length 12 to 16 mm.

Daptolestes nicholsoni, new species

Length 12 to 17 mm. Male, female.

Head: The head is dark, reddish brown; most of the front, except for the medial portion, with golden yellow, coarse, appressed, rather long micropubescence. There is a similar stripe of such pubescence along the sides of the eye margin on the face and above, extending medially inward to nearly reach across the upper margin of the epistoma and ventrally to cover the greater part of the cheeks; otherwise the face is bare and dark, shining red. There is similar, coarse, golden pubescence on the occiput. The postvertex, which appears bare and black, is also covered with such pubescence but more thinly. Pile of the front, vertex and face scanty, quite fine, erect and yellow, except for a few, scattered, black hairs. Mystax composed of 1 row of long, stout, pale yellow bristles. Proboscis and the very large palpus reddish brown. The former with yellow pile, except for 3 or 4 black hairs, the latter with yellow pile on the first segment and numerous, long, coarse, black, bristly hairs on the second. The second segment dorsally has a very large, flat, oval spot without pile, but with very fine micropubescence. Antenna with the first two segments reddish brown, the third similarly colored, becoming very slightly paler distally. In the middle the third segment is distinctly wider than the first, the microsegment is a little longer than wide with pale yellow, dorsal spine. Bristles on the upper occiput numerous, stout and black.

Thorax: The thorax is light, reddish brown. There is an obscure blackish spot on each side of the mesonotum before and behind the suture. Mesonotum covered with very thin, minute, completely flattened micropubescence which is brownish yellow; there is a dense band of more coarse, golden micropubescence above the wing and behind the suture, another posteriorly and laterally on the propleuron, a vertical stripe extending down the mesopleuron a short distance from the posterior margin, and an additional stripe posteriorly on the hypopleuron, besides a spot on the bulging callosity of the metanotum. Halteres pale, sulphur yellow.

Legs: The femora are reddish brown, all pairs with indistinct, blackish, ventral stripe, the tarsi and the distal half of all the tibiae likewise reddish brown.

Base of all the tibiae pale yellow, especially dorsally. Pile of all the legs scanty, yellowish white, fine, varying from erect near the base of the femora to subappressed distally on the femora. Bristles numerous, stout and black, but sometimes there are 2 reddish, dorsal bristles on the apical half of the hind tibiae and the medial bristles of the hind femur are reddish. The hind femur has 4 black bristles laterally, 3 ventrally, and 2 reddish bristles medially, besides a black, dorsomedial bristle at the apex.

Wings: The wings are nearly hyaline, except the anterior border, which is reddish brown and this color fills out the entire costal, subcostal, marginal, and submarginal cells and becomes somewhat lighter in the first basal cell. There is a still darker spot of reddish brown which fills out the entire apical portion of the first basal cell and slightly beyond, also the base of the discal cell, a tiny portion at the base of the fourth posterior cell, and narrowly along the apex of the second basal cell. Also this darker, reddish brown color fills out the whole of the second submarginal cell except the apex and narrowly borders the anterior half of the first posterior cell, beginning at the fork of the third vein.

Abdomen: The abdomen is rather dark reddish brown, shining, bare over much of the surface but with thin, golden pollen over almost the whole of the fourth, fifth and sixth tergites and with a narrow band of dense, coarse, brownish yellow micropubesence along the postmargin of the second to sixth tergites, most extensive at the end of the third tergite and moderately extensive at the end of the fourth tergite. There is a trace of pubescence in the middle of the first segment. Sides of first tergite with 1 reddish bristle and a few, fine hairs. Spines of acanthophorites short and reddish.

Type. Male, allotype female from Acacia Ridge, Brisbane, Queensland, Sept. 23, to Oct. 3, 1953. Paratypes 4 males, paratypes 3 females with the same data. Collected by F. M. Hull. In the collections of the author and 1 paratype in the collections of the Commonwealth Scientific and Industrial Research Organization, Australia. This species is named in honor of Dr. A. J. Nicholson, C.S.I.R.O., Australia.

Genus *Erythropogon* White

FIGURES 143, 575, 582, 1162, 1171, 1732, 1843, 1902, 2021, 2057

Erythropogon White, Papers Proc. Roy. Soc. Tasmania, 1913, p. 270, 1914. Type of genus: *Erythropogon ichneumoniformis* White, 1914, by original designation.

Flies of moderate size with the abdomen strongly constricted at the basal third and clavate beyond, the wings rather slender. They will be recognized by the extremely long and slender antenna, which is placed at the top of the head. The face is high and well developed and plane, or very slightly convex over the middle part, and produced below into a medially narrowed, short, ventral process. Anterior tibia with a weak, straight, apical, pointed spine and its basitarsus with microdenticles. Legs elongate. These flies are related to *Brachyrrhopala* Macquart. Length including antenna 21 mm.

Head, lateral aspect: The head is longer than usual, the face rather strongly developed above and below and plane in profile, except for a short stubby protuberance ventrally. Eyes normal, slightly recessive below and very strongly convex in front; they are only a little less convex posteriorly. The occiput is thick, obliterated only near the vertex and becomes especially prominent below the middle. The pile is very scanty and consists of only a few hairs in a submedial row; weak bristles begin at the middle and consist of some 16 pairs. The proboscis is decidedly slender, subcylindrical, slightly thickened at the base, the height increased by a strong, dorsomedial, crimped ridge; the apex is gently tapered but obtuse, with fine hairs. The base has only a few long hairs below. The structure is held nearly straight forward. Palpus clearly of two segments, the first segment excavated, the second porate. The pile is fine and long, with some subapical bristles. Antenna attached at the upper eighth of the head and extremely elongate and slender, fully 2½ times as long as the head. The first segment is nearly twice as long as the second, the third three times as long as the first two combined. The third segment is somewhat laterally convex towards the base, dorsoventrally compressed towards the apex. It has nearly parallel sides though perhaps slightly wider beyond the middle and at its apex bears a short, rounded, spoon-shaped microsegment containing a minute spine obscured by dense pubescence. The entire outer half of the third segment laterally has a long, dense fringe of pubescence. The antenna has very little pile, restricted to 5 or 6 fine setae laterally upon the first segment. Both first and second segments, especially the second, are strongly compressed laterally.

Head, anterior aspect: Face below the antenna about one-third the head width and with nearly parallel sides. Subepistoma rather short, horizontal, deeply concave with medial ridge. The face is pubescent on an oblique band from antenna to eye, lateral margins, a narrow medial band, a narrow band from eye to epistoma and the remainder bare, transversely striate and bearing a few, fine, scattered, moderately long hairs. The lower facial protuberance bears 4 stout, pale bristles barely longer than the second antennal segment. The front is very slightly divergent, the vertex of scarcely less width. The front is tumid and bears 6 or 8 long, fine hairs. Vertex moderately excavated; ocellar protuberance large, the large ocelli visible in profile, the protuberance bearing 3 or 4 pairs of fine hairs. The eye facets are considerably enlarged on a narrow, medial, central area but not zoned. The eyes extend well below the face but not below the cheeks.

Thorax: The thorax is more or less pollinose with scant pubescence; the pleuron also has very limited pubescence. The mesonotum is rather flattened over the middle, its pile minute, fine, setate and subappressed. There is an acrostical row present followed by a bare stripe. Dorsocentral elements sparse, no longer behind than in front. Humerus with rather sharp, lateral corners and pilose anteriorly. Mesonotal bristles are present as follows: 2 short, stout notopleural, 1 supraalar, 1 postalar. Scutellum with only stiff short setae upon the margin and 3 or 4 minute setae on the disc on either side. Propleuron with abundant, long pile below; pronotum with 2 pairs of stout bristles and some pile. Hypopleuron, pteropleuron, and all of the mesopleuron except the anterior prolongation without pile. Hypopleuron with a patch spot, metapleuron with 12 to 15 delicate hairs only. Metanotal slopes bullose, pubescent laterally, without pile; metasternal slopes and metasternum ventrally with a few long hairs; postmetacoxal area membranous; tegula pubescent only.

Legs: The legs are distinctly elongate, polished, with very scanty pile and reduced pale bristles, not thickened except that the hind femur is slightly dilated distally. This femur bears minute, appressed setae and 4 rather stout, short, lateral, tuberculate bristles, none at apex; there is no fringe and almost no pile beneath the hind femur. Its tibia is stout, especially towards the apex, and basally only about half as wide. It bears 4 or 5 short, dorsal, 4 slightly longer lateral and 2 ventral bristles, all stout and oblique. On the medial surface is a brush of erect or nearly erect, dense pile extending from the middle. The apex of the hind tibia has 1 dorsal, 2 medial, 2 lateral, and 3 ventral bristles. Middle femur with 1 anterior near the middle and 3 posterior bristles; this tibia has 4 dorsal, 4 anterodorsal, 6 posterior, and 3 rather longer ventral bristles. The apical circlet has 8 bristles. Anterior femur with 1 posteroapical, 1 anterior bristle in the middle; its tibia has 3 anterodorsal, 3 posterodorsal, 5 anterior, and 2 ventral elements. Apex with a weak, straight, ventral spine and basitarsus with microdenticles. Tarsi end in well developed pulvilli; basally stout empodium, two-thirds as long as claw; and sharp claws.

Wings: The wings are slender, subhyaline, the marginal cell widely open; anterior branch of third vein ends at apex; fourth posterior cell widely open, slightly narrowed; the discal cell ends in a single vein. The first posterior cell has a basal stalk of varying extent; anal cell widely open; second basal cell ending with 3 veins; alula large, the ambient vein complete.

Abdomen: The abdomen is strongly constricted, laterally compressed to subcylindrical on the posterior part of the second segment and the base of the third segment. The posterior part of the abdomen is banded and clavate and drooping. Sides of first tergite not swollen. In the males eight tergites present, with the eighth very short, a third as long as the seventh and the seventh not more than one-third as long as the sixth. Eight tergites well developed in the female, the eighth two-thirds as long as the seventh. Pile of abdomen minute, appressed, setate, a few long, fine hairs on the sides of the first tergite; sternites with some long, fine pile, the first excepted. Second tergite with 2 quite short, but stout, tuberculate bristles. Male terminalia elongate, rotate to the right, the aedeagus unusually long and stout, curved downward from the base and then directed posteriorward. It is unusually large and elongate, apically flared. Epandrium undivided. Female with a row of 9 pairs of short, spoon-shaped spines on the acanthophorites; the lateral process bears 4 spinous bristles.

Distribution: Australian: *Erythropogon australis* G. Hardy (1930); *ichneumoniformis* White (1914).

Genus *Brachyrrhopala* Macquart

FIGURES 67, 133, 144, 161, 161A, 173, 581, 1110, 1119, 1158, 1167, 1579, 1611, 1727, 1734, 1736, 1764, 1865, 1897, 1899, 1933, 1939, 2000, 2032

Brachyrrhopala Macquart, Diptères exotiques, suppl. 2, p. 35, 1847. Type of genus: *Brachyrrhopala ruficornis* Macquart, 1847, by monotypy.

Small flies generally with club-shaped abdomen, the last several segments being distinctly widened. Wings slender, often with some diffuse, brown pattern and all cells open; the upper intercalary vein sometimes completely eliminated. Thorax tends to be short and high, almost as high as long; the mesonotum, in consequence appears hump-backed, accentuated by its own convexity and the metanotum is high with the abdomen drooping. The front legs are comparatively long, the protibial apex with a spine. Third antennal segment elongate, widened distally, except at the narrowed apex, which bears a microscopic, dorsal spine. Face short, plane or barely convex with a few hairs and weak bristles usually concentrated on the lower half. Both male and female terminalia tend to be largely recessed; the former are rotate, with prominent, exposed aedeagus as in *Chrysopogon* Roeder; the latter have minute, scarcely visible acanthophorite spines. Length 8 to 15 mm.

Head, lateral aspect: The head is rather small, of medium length, the face is not very high and is little extended beyond the eye margin and extended to a uniform extent; it is therefore gently convex. The epistoma is also small. Occiput in profile quite reduced and bearing a few, fine, scanty hairs below and slender bristles that start well below the middle of the head and become stout or even spikelike behind the upper eye corners. Only 1 or 2 smaller bristles extend across behind the vertex. Proboscis rather short and strongly compressed laterally; it is nearly plane below with a high, thin, dorsal ridge and near the apex dorsally sloping to a blunt point. Apex with fine hairs above and below. Ventral surface with 2 or 3 hairs in the middle and 2 or 3 hairs laterally near the base. Proboscis directed obliquely downward or forward. Palpus elongate, slender, clearly of two segments, the first excavated, the second clavate with apical pore and numerous, bristly hairs. The antenna is attached at the upper third of the head and only moderately elongate, perhaps not quite as long as the head. The first two segments of nearly equal length, the first a little longer and nearly two times as long as wide. First segment with minute setae above and 1 or 2 lateral hairs; second with setae and 1 or 2 weak ventral bristles; third 1½ times the combined length of the first two, tending to be quite narrow basally and moderately dilated on the outer two-thirds. It bears a small, apical, semifused, dorsally open, spoonlike microsegment with concealed spine.

Head, anterior aspect: The head is not quite twice as wide as high; face broad, slightly wider below, often without pile on the upper half, with some coarse hairs on the ventral half and mystax composed of a dense band of quite slender, pale bristles or with 8 to 10 more isolated, slightly stronger bristles. Front distinctly wider than the upper face, the vertex not narrowed. The front is comparatively small, largely bare, and polished with a submedial row of quite fine hairs. Ocular margins of the vertex with similar fine hairs. Vertex but little excavated. The ocellarium is large but rather low and bears a pair of quite slender, bristly hairs between the posterior ocelli and 1 or 2 others behind. Anterior eye facets enlarged.

Thorax: The thorax is unusually high and short; the mesonotum is moderately high and convex, densely micropubescent with a few differentiated acrostical hairs arising out of the pubescence. Dorsocentral elements are chiefly differentiated only behind the suture, where each row may have 5 bristly hairs, 2 or 3 others situated medially. Lateral bristles are long and slender; there is 1 notopleural, 2 or 3 supraalar, 1 or 2 bristles on the posterior callosity and 1 pair on the scutellum. Scutellum with deep, prominent, transverse, groovelike wrinkles. Metanotum unusually high, the callosities pubescent only. Pleuron largely pollinose and with vertical bands of golden pubescence in some species. Posterior border of mesopleuron and sternopleuron with fine pile. Metapleuron with at most long, slender, bristly hairs. Postmetacoxal area membranous; lateral and ventral metasternum with long, fine pile. Prosternum fully dissociated.

Legs: The legs are polished and largely bare with a few, fine, minute, scattered, appressed hairs and very few short spines on the femora, somewhat longer spines on the tibia. The hind legs are not very long; both femur and tibia are dilated distally but all the tarsi are slender. Hind femur with 4 dorsolateral bristles, 3 ventrolateral, and at apex 1 dorsomedial bristle. Hind tibia with 4 dorsolateral, 3 dorsomedial, 3 ventrolateral, apex with only 3 bristles. This tibia also has ranked, ventral setae over most of its length. Middle femur with 2 anterior and 1 small posterodorsal apical bristle. Middle tibia with 3 small dorsal bristles and 1 quite long, middle and 1 distal anterodorsal bristle; also with 4 small posteroventral and 2 quite long ventral bristles. Anterior femur without bristles. Anterior tibia unusually slender and with only 3 minute posterodorsal, 3 posteroventral bristles apart from those of the apex. Apex with medioventral, short protuberance and straight, sharp, slightly curved spine apposed to a basitarsal swelling. Ventral surface of anterior basitarsus with dense, fine, erect pile continued on to the other segments. Claws slender, sharp; pulvilli large; empodium slender.

Wings: The wings are hyaline or partly marked with brown or yellow. The wing is comparatively slender with the cells narrow. Marginal cell quite widely open; the second submarginal cell is widened both above and below the third vein and forked nearly opposite the discal cell. All posterior cells and the anal cell widely open. Posterior crossvein is long; the anterior crossvein enters the discal cell well before the middle. Alula only moderately wide; ambient vein complete, villi reduced or absent over much of the wing.

Abdomen: The abdomen is comparatively short and distinctly clublike; the first segment is short and nearly as wide as the thorax, the second longer and the abdomen most narrow at the end of the second segment and widest at the base of the fifth segment. Surface cover densely appressed, finely setate, with numerous, long, fine hairs laterally on the first and second and to some extent on the third segments. First segment laterally with at least 1 stout bristle. Males with six well developed segments, the seventh may show as a linear trace or be completely concealed, the eighth is deeply tucked under. Females with eight segments, the last two short. Males with a rather deep recess dorsally beneath the posterior edge of the fourth and fifth segments. Male terminalia recessive and very largely tucked in beneath the sixth to eighth segments. The epandrium is simple with large, elongate, subconical proctiger. Hypandrium quite short, gonopod well developed with hooklike, apical process; penis valves large, flared with distal teeth. Female with acanthophorites and very minute spines so deeply recessed that they are sometimes not evident.

Distribution: Australian: *Brachyrrhopala bella* White (1917); *claviventris* Walker (1861); *fenestrata* Macquart (1849) [=*victoriae* Roeder (1892)]; *indecorus* Walker (1865); *inopinus* Walker (1859); *limbipennis* Macquart (1846) [=*maculinervis* Macquart (1849), *tasmaniae* Walker (1851)]; *nitidus* Macquart (1844), *nitidus dissimilis* Hardy (1917); *quadricincta* Bigot (1878) [=*fulva* Ricardo (1912)]; *ruficornis* Macquart (1847); *semifilatus* Walker (1862); *semirufa* Hardy (1930); *solutus* Walker (1862).

Genus *Cabaza* Walker

FIGURES 171, 579, 1164, 1173, 1695, 1715, 1724, 1924, 2035

Cabaza Walker, Insecta saundersiana, vol. 1, pt. 2, p. 100, 1851. Type of genus: *Dasypogon pulchella* Macquart, 1846, as *Cabaza rufithorax* Walker 1851, by monotypy.

Small, robust, shining, black flies, generally with a reddish thorax which is high and strongly humpbacked. The broad wings are unusually dark brown or blackish. The female terminalia are strongly recessed, the minute spines often hidden. Related to *Brachyrrhopala* Macquart, they are separated from this and allied genera by the strongly elevated and arched mesonotum. The face is concave. Protibia with spine. Length 8 to 12 mm.

Head, anterior aspect: The head is nearly two times as wide as high; the face is about a fourth the head width, barely wider below with large, bare, polished, central areas; is has fine, pale pubescence laterally and generally has only a few, scattered hairs on the ventral half and the mystax consists of 3 or 4 slender, or stout, pale bristles which extend beyond the proboscis. Epistoma small. Front short, wide, wider than the upper face, polished and bare, with 2 or 3 submedial hairs and a threadlike line of pubescence along the eye. The vertex is wider; the ocellarium large, though rather low and bears large ocelli and 3 or 4 pairs of slender bristles, some of them behind the ocelli. Vertex only moderately excavated.

Head, lateral aspect: The head is small, the face of reduced height, and strongly concave across the middle, being a little produced forward dorsally and ventrally as in *Brachyrrhopala*. The occiput is of only moderate extent with scattered, quite fine hairs below. Slender bristles that begin in the middle become stouter dorsally and are situated in 1 deeply placed row, with only 2 bristles behind the wide vertex. Proboscis short but extended well beyond the face; it is rather attenuate from the base to a blunt point and bears a dorsal ridge; it is very little compressed; pile as in *Brachyrrhopala*. Palpus of two segments, the first short, excavated, the second not very long, somewhat clavate with apical pore and a few bristly hairs. The antenna is attached at the upper third of the head and is as long as the head or slightly longer. The first two segments are short, of equal length, and barely longer than wide. Third segment scarcely wider than the second, of nearly uniform width and a little compressed; the apex is blunt, with a minute spine rather hidden by pubescence.

Thorax: The thorax is large and exceptionally high, the prothorax quite short and small. Mesonotum greatly elevated, convexly arched, dull but bare, with quite scattered, fine, erect hairs laterally, a prominent acrostical row and dorsocentral rows of fine bristles, the latter becomes longer but not stouter behind. Lateral bristles are slender and consist of 1 notopleural, 2 supraalar, 1 on the postalar callosity, and 1 pair on the scutellum with additional fine, shorter, stiffened hairs. Scutellar disc with faint, transverse grooves. Metanotum high without pile or bristles laterally. Pleuron largely bare with a few fine hairs posteriorly on the mesopleuron and sternopleuron. The hypopleuron and lateral metasternum and the anterior coxae curiously are covered with silver micropubescence. Pronotum with stiff hairs only. Metapleuron with a wide band of long, stiff hairs. Halteres exceptionally large distally. Postmetacoxal area membranous; prosternum fully dissociated. Almost all the mesonotum and most of the pleuron are light brick red or orange, colors which, with the blackish wings, imitate the pattern of *Macrocolus* Engel and the bibionid *Plecia* Wiedemann.

Legs: The legs are polished, shining black with very sparse, scanty, fine hairs. The bristles are basally stout but become very fine and sharp at apex. The hind legs are elongate but slender, the hind femur is barely wider distally. The slender, hind tibia is equally long, is rather strongly dilated near the apex with the tarsi all slender. Hind femur with 3 lateral bristles and at the apex 1 dorsolateral and 2 dorsomedial bristles. Tibia with 4 dorsolateral, 3 dorsomedial, and 3 ventrolateral bristles; apex with 4 bristles. Middle femur with a bristly hair at the apex posterodorsally and with 4 anterodorsal bristles, 3 of which are quite long, 4 posterodorsal bristles, all short and 2 long, spikelike, ventral bristles at the middle and beyond. Anterior femur without bristles; tibia with 1 minute anterodorsal bristle at the base, 3 posterodorsal, 3 posteroventral bristles, and 1 long, distal ventral bristle. Apex with a ventromedial, short process and straight spine apposed against a small basitarsal swelling with denticles. Ventral surface of these tarsi with dense, fine, erect pile. Claws slender, sharp, pulvilli large, empodium short, strongly swollen at the base.

Wings: The wings are dark bluish or purplish black or brown, and broad. Marginal cell very widely open, all posterior cells widely open. Anal cell open. Alula moderately wide; ambient vein complete. Wing densely villose. The anterior crossvein enters the discal cell at the middle. The posterior crossvein is well developed.

Abdomen: The abdomen at the base is not quite as wide as the mesonotum. The abdomen is slightly widened to the end of the fourth segment so that it is subclavate but not at all conspicuously club-shaped as in *Brachyrrhopala*. It is shining blackish and it is covered with fine, scanty, subappressed hairs and some pubescence on the posterior margin. First segment with only bristly hairs; sides of the second with some long, fine hairs. Males with seven segments, the seventh quite short and the eighth concealed. Females with eight segments, both the seventh and eighth short; the male terminalia are moderately large, rotate, largely extruded with short, wide, simple epandium and large, medially grooved, depressed, obtuse proctiger. It has a very short hypandrium, rather large gonopod, and completely exposed genital cavity with large penis guides. Females with the posterior part of the abdomen and terminalia rather high; the eighth segment is somewhat bluntly tucked in, largely concealing the recessed acanthophorites and their minute spines, which consist of about 10 pairs on each side, short and blunt. Eighth sternite protrusive, and rather troughlike.

Distribution: Australian: *Cabaza glabrata* Walker (1861); *honesta* Walker (1859); *pulchella* Macquart (1846), *pulchella rufithorax* Walker (1851); *rubrithorax* Macquart (1849) [=*venno* Walker (1849)].

Tribes Thereutrini and Enigmomorphini

The interesting Australian genera, *Thereutria* Loew and *Metalaphria* Ricardo have been assigned a place to themselves, the tribe Thereutrini. Related to the Dasypogonini, they are at once recognized by the combination of the closed marginal cell, as in the Laphriinae, and the spine at apex of the anterior tibia, together with the spines on the female acanthophorites. These flies are confined to Australia. I found the first mentioned genus frequenting the leaves of shrubs in the borders of woods, where sun penetrated to the shrub level; the flies of *Metalaphria* were common on sand and gravel of stream beds.

To the tribe Enigmomorphini is assigned a single, peculiar fly, *Enigmomorpheus* Hermann. This fly from Paraguay shows several unusual features: it lacks spine on the apex of the anterior tibia; the marginal cell is closed; the female has stout spines on the acanthophorites, and the palpus has one segment. Its resemblance to flies of the *Diogmites* Loew complex, rather than to *Stenopogon* Loew adds further complication to the matter of its relationship and so, because of its aberrant aspects and peculiarities, it has been set apart.

KEY TO GENERA OF THEREUTRINI AND ENIGMOMORPHINI

1. Marginal cell closed. Antenna not with terminal style or arista. Palpus of 1 or 2 segments. Anterior tibia with or without spine. Females always with terminal spines on acanthophorites 2
   Marginal cell open. Palpus of 2 segments. Other DASYPOGONINAE
2. Anterior tibia without spine. Palpus of 1 segment (Tribe ENIGMOMORPHINI . . . . ENIGMOMORPHEUS Hermann
   Anterior tibia with spine at apex. Palpus of 2 segments (Tribe THEREUTRINI) 3
3. The oral bristles cover the whole of the low, facial gibbosity. Proboscis strongly depressed dorsoventrally at apex. The known species are feebly shining, black flies . . . . THEREUTRIA Loew
   The oral bristles are situated in, at most, 2 close-set rows along the epistoma. The proboscis is simple. The known species are pale brown pollinose . METALAPHRIA Ricardo

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Genus *Enigmomorpheus* Hermann

FIGURES 107, 567, 1159, 1168, 1607, 1920, 1990

Enigmomorpheus Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 272, 1912. Type of genus: *Enigmomorpheus paradoxus* Hermann, 1912, by original designation.

Curious flies of medium size which suggest *Diogmites* Loew in the presence of stout acanthophorite spines but lack any protibial spine. The marginal cell is closed and there is only a single palpal segment. The male is unknown and hence we do not know if the male terminalia are rotate as in *Diogmites* or not rotate as in *Stenopogon* Loew. Length 13 mm.

Head, lateral aspect: The length of the head is moderate and the face short. The occiput is convex behind, especially below, and moderately long pilose; near the middle of the occiput there begins a double row of rather stiff, pale bristles of moderate length. Well below the vertex and just above the cervix is a patch of 12 still more stout bristles. The proboscis is directed obliquely forward; it is a little wider and more stout at the base, gently tapered to a rounded apex which bears only a few scattered, short, stout hairs; medially above, the proboscis is gathered into a thin, dorsal ridge which is rather conspicuous at the base. Palpus prominent, cylindrical and composed of a single segment which bears numerous, long bristles; from a lateral view the possibility will be noted that the basal segment of the palpus became completely fused to the ultimate segment instead of being lost or fused to the base of the head as is common in so many genera. Antenna elongate, longer than the head; the second segment is longer than the first; the length of the third segment is not quite two times the combined length of the basal segments. The third segment is of uniform thickness, tapered to the apex, and bears 14 dorsal setae; at the apex this segment bears a short, semifused, dorsal and obliquely open pit with enclosed spine.

Head, anterior, aspect: The head is exceptionally wide but the face below the antenna is little more than one-fourth the head width and slightly divergent below. The face is micropubescent and without pile, except for numerous, stiff, long hairs on the lower third of the face. Laterally these hairs are directed sharply downward but in the middle of the face they are replaced by about 8 rather long, and medially longer, shelflike row of stout bristles. These stout bristles are arranged in a single row and there is a little short, stiff pile immediately above them. Laterally the front has a few stiff hairs on each side above the antenna and the ocular margin of the front bears 4 quite stout, black bristles. The vertex is only moderately excavated above and the ocellar protuberance is rather low but bears an anterior and posterior pair of long, divergent, black, exceptionally stout, tuberculate bristles.

Thorax: The mesonotum only moderately convex, the humerus with 4 medium stout bristles placed in a row, a single row of minute, submicroscopic, acrostical bristles. Also, beginning adjacent to the humerus and placed on the outer third of the mesonotum, there is a row of 6 quite stout, black bristles, 4 of which are placed anterior to the suture. There is a row of minute, fine, long hairs above the quite flattened scutellum. Scutellum with a pair of very strong, quite long, widely separated, stout, tuberculate, black bristles. Postalar area with 2 even stouter and longer black bristles. The notopleural area with 3 almost equally stout, long, black bristles. The supraalar area has 2 similarly long, stout bristles. The mesonotum is otherwise bare, except for a few minute, scattered hairs above the postalar region and medial to the humerus, and with a patch of 6 minute, black bristles on the notopleuron. Pleuron pollinose, with very fine, long pile along the posterior border of the mesopleuron and its lower central portion but scanty in quantity. Propleuron pilose; pronotum with 7 or 8 moderately long, stiff, pale yellow hairs. Hypopleuron bare except for long and short pubescence. Metapleuron convex with a vertical row of 5 or 6 rather weak, moderately long, pale bristles. Metanotal slopes strongly bullose, pollinose, but distinctly without pile. Lateral metasternum with numerous fine, erect hairs. Postmetacoxal area membranous.

Legs: Posterior femur elongate and moderately slender with minute, fine, short, appressed setae laterally, dorsally, but almost bare ventrally and upon the lower half of the medial surface. There is a minute, black bristle laterally near the base on one side of one femur but it is absent on the other femur; otherwise bristles are completely absent on the femur. This femur is only very slightly more slender on the basal fourth. Hind tibia bears strong, stout bristles: 3 dorsally, evenly spaced, 4 laterally, and 3, beginning just before the middle, placed on the lateral portion of the ventral surface. There are none medially but the dense, minute, appressed, golden pile often found on the medial surface begins at the middle. At the apex are 1 dorsolateral, 1 lateral, 1 weak medial bristle, and a cluster or row of 3 strong, ventral, black, spinose bristles. Hind tarsus with the basitarsus elongate, nearly equal in length to the three remaining segments with prominent bristles below and a circlet of 6 bristles at the apex. Middle femur with only minute, appressed setae and a single, rather stout, black bristle posteriorly near the apex. There is 1 long, fine, yellow hair ventrally near the base. Middle tibia with 3 long, stout, anterolateral bristles, the basal one shorter, the middle one yellow and with 2 quite long, oblique, quite stout, ventral yellow bristles near the basal and distal thirds. Apex with a stout, yellow bristle and a black bristle both located below, 2 short, black bristles above, a long black bristle anteriorly.

Anterior femur similar to the middle pair but with 2 anterodistal, black bristles; its tibia has 4 minute black bristles anteriorly, 2 longer bristles dorsally and 1 short and 1 quite long, posterior bristle, which is yellow, at basal and distal thirds. The apex bears rather stout bristles placed a short distance back from the apex. There are 2 dorsal, 1 exceptionally long anterior, 1 shorter posterior and 1 ventral; its tarsus has a similar, long, stout, posterior, basal bristle and a circlet of bristles at the apex. No spine or spur at the apex of the anterior tibia. Claws sharp; pulvilli four-fifths length of claw; empodium long.

Wings: The wings are rather slender; marginal cell closed with a stalk; fourth posterior cell closed with a stalk; anal cell very narrowly open; alula well developed, ambient vein complete.

Abdomen: The abdomen is tapering and subcylindrical on the distal half, the base moderately convex and becoming strongly curled laterally. Posterior margins of first segment laterally with a fan of 5 moderately stout, pale bristles. Remaining segments with only microscopic, subappressed, black setae, rather scanty in quantity. The sides of all except the last tergite are pollinose; the medial areas are opaque black, but faintly shining on the sixth and quite shining on the seventh tergites. Females with the last tergite shining, rather long, divided into acanthophorites and bearing on each side a clawlike cluster of very stout, curved, lateral spines. These spines have much more depth than usual and are spikelike, hence rather unlike those of any other genus known to me. Sternites with a few long hairs on the basal 2 sternites, the remainder with only scattered microscopic setae. Males are unknown. The Hermann collection and the Vienna collection each contain a female.

Distribution: Neotropical: *Enigmomorpheus paradoxus* Hermann (1912).

Genus *Metalaphria* Ricardo

FIGURES 98, 164, 578, 1163, 1172, 1776, 1793, 1846, 1953

Metalaphria Ricardo, Ann. Mag. Nat. Hist., ser. 8, vol. 10, p. 356, 1912. Type of genus: *Metalaphria australis* Ricardo, 1912, by original designation

Medium size, pollinose flies with minute, scanty, abdominal pile and scattered, mesonotal setae. Bristles are strong but few. The related *Thereutria* Loew has long, appressed, abdominal setae, is generally black in color with shining abdomen. Also the two genera differ in the antenna and proboscis. In *Thereutria* the third antennal segment is longer and more slender and the apex of the proboscis is wider from the dorsal aspect and distinctly depressed and shovellike dorsoventrally; face much longer. Both genera have the marginal cell closed and short petiolate, the posterior cells open but the fourth narrowed, and the anal cell open or closed in the margin. Male terminalia rotate; the epandrium cleft and apposed; female with acanthophorites and spines. Prosternum dissociated. Length 12 to 16 mm.

Head, lateral aspect: The face is quite short, almost plane with the eye except at the epistoma, which is very slightly produced. Occiput prominent, especially on the lower third, which bears dense, moderately long, whitish pile. At the middle of the head there are weak, white bristles replaced above by numerous, stout, white bristles situated in 1 row and a patch of similar bristles behind the vertex, 17 on each side. Proboscis short but extending beyond the face, plane below, arched above towards the apex and with a dorsal ridge or keel. The apex has fine pile and the base bears a few, long hairs below. Palpus of two segments, the first apparently cylindrical, the second also cylindrical, longer, and with rather numerous, fine to coarse hairs. The antenna is attached a little below the upper third of the head and approximately as long as the head. First two segments equal in length, each 1½ times as long as high, and the third not quite twice the combined length of the first two. The third segment at base is less wide than the second, through the middle it is a little widened and close to the apex tapered and narrowed, ending in a small, transverse opening with minute, exposed spine. First segment with several weak bristles ventrally and laterally and setae above; second segment similar but with shorter bristles.

Head, anterior aspect: The head is twice as wide as high, the face is approximately one-fourth the head width and barely wider below. The cheeks scarcely extend below the eye. While the face is not high, the subepistoma is not large either. Face without pile, densely pale micropubescent with 2 or 3 rows of close-set, rather long, stout, whitish bristles placed transversely above the epistoma and extending beyond the proboscis. The lower face contains approximately 36 bristles. Front considerably wider than upper face and the vertex is barely narrowed. The front is rather long, more or less flattened but near the eye margin sunken and sloping downward. Ocular margin with a row of fine bristles and an additional band of bristles submedially on the front. Ocellarium moderately large, low, with large ocelli and 3 pairs of long, stout bristles, and sometimes 1 or 2 additional setae.

Thorax: The mesonotum is moderately high, abrupt anteriorly, everywhere pollinose with a wide, bare, medial band containing an acrostical row of stout setae. Dorsocentral setae or short bristles are well developed in the middle and behind the suture consist of 4 long, prominent bristles. Lateral bristles are stout and long and consist of 2 anterior humeral, 2 notopleural, 2 supraalar, 2 on the postalar callosity, and 1 pair on the scutellum which are crossed. Scutellum flat on the disc and pollinose only. Metanotal callosity prominent and pollinose only. Pleuron densely pale pollinose without pile except on the propleuron where there is also laterally a stout bristle. Pronotal bristles weak; the metapleuron has a vertical row of 8 bristles and some other long hairs. Postmetacoxal area membranous; lateral metasternum pilose; ventral metasternum with only 1 or 2 hairs; prosternum fully dissociated.

Legs: The legs are not of unusual length and everywhere comparatively slender with abundant, appressed, fine setae and comparatively few bristles, and almost none on the femora. Hind femur with 1 lateral bristle near the base; middle femur with 1 bristle posterodorsally near the apex; anterior femur with none. Posterior tibia with 4 dorsolateral bristles, 3 of them on the basal half, 2 longer, stouter dorsomedial bristles, 1 on each half, besides 2 other shorter basal elements; this tibia also with 3 ventrolateral bristles, the apex with 7 bristles. The slender basitarsus is as long as the next three segments. Middle tibia with four short and 1 long distal anterodorsal bristle and 4 short, posterodorsal bristles, besides 4 posteroventral and 1 conspicuous distal ventral bristle. Anterior femur with 5 anterodorsal, 4 posterodorsal, and 2 conspicuous, long, posteroventral bristles. Apex with a medial or medioventral, twisted, curved spine resting against a patch of minute, black denticles on the basitarsus. All tarsi end in long, slender, sharp claws bent at the apex, well developed pulvilli and long, bladelike empodium.

Wings: The wings are hyaline and slender, the marginal cell closed with a short stalk, the first posterior cell is rather widely open though a little narrowed. Fourth posterior cell greatly narrowed, possibly sometimes closed. Anal cell closed in the margin or narrowly open. Alula large, ambient vein complete, wing densely covered with quite minute villi.

Abdomen: The abdomen, like the thorax, is dark brown, with dense, pale pollen, changing appearance with the direction of light. Postmargin yellowish. The first segment is as wide as the mesonotum and beyond the abdomen is rather strongly tapered and is cylindrical distally. It is thinly covered with small, appressed, pale setae. Sides of the first segment with some longer pile and 6 slender, pale bristles. Males with eight segments, the eighth only half as long as the seventh which is shorter than the sixth. Females with eight segments, the eighth more than half as long as the long seventh segment. Male terminalia moderately large, usually rotate about one-fourth, broad but somewhat depressed; the epandrium is large, fully cleft but with tightly apposed sides and the proctiger extends beyond. Hypandrium large, gonopod moderately large, convex laterally with apical process bent downward. Genital cavity fully exposed. Whole terminalia with numerous, fine, long hairs and quite slender bristles. Female terminalia with acanthophorites and 5 pairs of moderately sharp spines.

Distribution: Australian: *Metalaphria aurifacies* White (1917); *australis* Ricardo (1912); *tessellata* Hardy (1930).

Genus *Thereutria* Loew

FIGURES 97, 576, 1165, 1174, 1748, 1811, 1904, 2019

Thereutria Loew, Bemerkungen über die Familie Asiliden, 1851, p. 20, 1851. Type of genus: *Laphria amaraeus* Walker, 1849, as *Thereutria calcar* Loew, 1851, by monotypy.

Scandon Walker, Insecta Saundersiana, vol. 1, pt. 2, p. 108, 1851. Type of genus: *Scandon compactus* Walker, 1851, by monotypy.

Flies of medium size, easily recognized by the combination of the closed marginal cell and the presence of the protibial spur, without accompanying flange upon the basitarsus. Females have acanthophorites with spines. The known species are dark colored, bare, feebly shining flies with the tibial, thoracic and cephalic bristles strongly developed. The male terminalia is not rotate. These flies are probably distantly allied to *Saropogon* Loew and perhaps connect the *Stenopogon* Loew and *Saropogon* groups. Length 12 to 18 mm.

Head, lateral aspect: The head is of medium length. The face is short, except on the lower third where there is a small, rounded elevation or gibbosity. The occiput is prominent throughout its height except immediately behind the upper eye margin. The pile of the occiput is fine, long and dense on the lower third and is wholly replaced by bristles on the upper two-thirds; upon the middle third the bristles are situated in 2 or more rows; The proboscis is comparatively short but extended well beyond the face, with a high, medial ridge which is attenuate and reduced shortly before the apex leaving the apex quite pointed, dorsoventrally flattened and shovel-like. Apical third on either side below with long, slender, bristly hairs and still longer hairs on the basal half. Palpus large and clearly of two segments; the first segment is excavated and bears long, ventral pile; the second is clavate with an apical pore and scattered, slender bristles on all sides. The antenna is attached at the upper third of the head and is very little longer than the total head length. The first segment bears 4 or 5 long, stout, ventral bristles and is subequal in length to the second segment with 2 or 3 similar bristles. Third segment elongate, comparatively slender, slightly narrowed near the base and again at apex; it bears traces of a completely fused microsegment. At the apex there is a wide, truncate pit and spine.

Head, anterior aspect: The face at antenna is about a fifth the head width or less, and slightly wider below. The face cover consists of dense pubescence without pile and with a narrow, supraepistomal band or cluster of stout, rather long, scattered, often pale bristles. Subepistomal area large and oblique. Front considerably wider than the face, becoming again reduced or convergent to a moderate extent at the vertex. The front is somewhat sunken, densely pollinose and bears a characteristic row of strong, close-set bristles on each eye margin. There may be a single bristly hair in the middle of each half of the front. The vertex is shallowly excavated, the ocellarium low and wide with 5 pairs of long, slender bristles and a low-set, submedial, postvertical cluster of 4 stout bristles on the upper occiput. Anterior eye facets rather strongly enlarged.

Thorax: The mesonotum is thinly pollinose with greatly reduced pile consisting of a few scattered, bristly hairs on the humerus, behind the humerus and above the wing. There is a well developed single row of acrostical bristles, short and fine, a single row of long, more stout dorsocentral bristles. The complement of long, prominent, lateral bristles is as follows: 1 humeral, 2 notopleural, 3 supraalar, 2 postalar, 2 pairs of bristles on the scutellar margin. Propleuron with a row of weak bristles on the pronotum and 2 laterally on the pronotum; lateral elements of the propleuron with a dense, conspicuous tuft of fine, long pile. Prosternum dissociated. Upper sternopleuron with a tuft of long, fine pile. Mesopleuron, pteropleuron and hypopleuron apilose. Metapleuron with a vertical row of 6 or 7 long, stout bristles and some pile. Metanotal callosity very strongly swollen and pubescent only. Scutellum flat, pollinose, without pile. Postmetacoxal area membranous; lateral and ventral metasternum with scattered hairs.

Legs: All the femora are stout without being swollen and bear rather dense, fine, appressed setae and very few bristles. Hind femur with a single, stout, lateral bristle at the basal third only. Anterior and middle femur each with a similar bristle posteriorly near the apex. Tibial bristles few but quite stout and conspicuous; their pile is comparatively fine and appressed. On the hind tibia are 3 dorsomedial, 3 dorsolateral and, beyond the middle, 2 ventrolateral bristles. The apical cluster consists of 7 bristles, of which 1 is dorsal and 2 are medial. On the middle tibia are 4 anterodorsal bristles, the last 2 of which are exceptionally long and stout, 4 posterodorsal, 4 posteroventral, and 2 very long, ventral bristles. Anterior tibia with the dorsal bristles on either side small and consisting of 4 in each row, 5 weak posteroventral bristles, supplemented by 2 exceptionally long, stout, ventral bristles directed backward. In addition there is a ventral row of 8 long, bristlelike hairs. Apex with a rather stout, twisted spine; a basal protuberance is lacking or short. Claws sharp, pulvilli well developed, and empodium flattened.

Wings: The wings are slender, the marginal cell closed and stalked; all the posterior cells are widely open, and the anal cell is open. Alula present, ambient vein complete.

Abdomen: The abdomen is comparatively robust basally and rather strongly tapered in females beyond the third segment and more gently tapered in the males beyond the first segment. Bristles are restricted to the first tergite, where there may be as many as 6 quite stout bristles. Pile greatly reduced, fine and scattered laterally, short, appressed and setate on the dorsal portion of the tergite. Males with eight tergites, the eighth quite short and still shorter laterally; the females with eight tergites, the last one only a little shortened. Male terminalia not rotate. The epandrium is cleft to the base but overlapping on the basal half. The apical portion is divergent; its sides tightly overlapping the convex lower forceps. Gonopod of moderate size. The hypandrium is large and convex but most of the ventral part of the terminalia is exposed. Females with a row of stout, long spines on the acanthophorites, 5 on each side.

Distribution: Australian: *Thereutria amaracus* Walker (1849) [=*aurifacies* Macquart (1849), *calcar* Loew (1851), *caligula* Bigot (1878), *compacta* Walker (1851), *diversicolor* Macquart (1849), *diversipes* Macquart (1855), *diversipes* Kirby (1884), *ialmus* Walker (1855)]; *luctuosa* Macquart (1838); *pulchra* Schiner (1868); *pulchripes* White (1917).

Subfamily Leptogastrinae

These asilids comprise a relatively small group of flies, even though the genus *Leptogaster* Meigen is nearly world wide in distribution and contains a very large number of species. They are rather readily characterized by the long, quite slender, somewhat clubbed or clavate abdomen and especially by the complete lack of pulvilli, the palpus of one segment and the absence of the alula. All these characters are collectively found in Leptogastrinae, but are singly shared by other asilids. The empodium is occasionally wholly absent or rudimentary and in one genus the medial claw has become shorter and smaller than the lateral claw. Some delicate species measure as little as 6 to 8 mm. in length; others reach a length of 33 mm.

A surprising development appears in the bizarre Central American genus *Eurhabdus* Aldrich, where the whole basal half of the wing is reduced to a single, stout stalk. The palpus in Leptogastrinae has a distinctive form and consists of one segment with sometimes a more or less fused rudiment of the basal segment; its form is cylindroid and clavate. The venation of *Leptogaster* Meigen *sensu stricto* is quite variable and in the subfamily as a whole two trends are evident: in one generalized group the anal cell remains open, sometimes to an exceptional and marked extent; in another group of genera the anal cell is closed with a long stalk and the elongate hind femur and tibia tend to become swollen either with or without dense hair brushes.

Although some authors have removed *Acronyches* Williston from the Leptogastrinae to the Dasypogoninae, its correct position is here in this subfamily and these flies have a characteristic facies. I would regard this subfamily as most closely allied to the Dasypogoninae.

Some rather interesting general similarities exist between the Leptogastrinae and certain delicate, slender members of the Rhagionidae, as well as certain tipulids; some East Indian tipulids posess venation strongly resembling Leptogastrinae and still further possess the strong neuromarginal setae seen on radius and medius in *Schildia* Aldrich.

Certain species are frequently found in the herbage associated with forests, but others occur in grassland. For larval habits see Malloch, 1917, and Melin, 1923.

As far as is known, this subfamily dates back to the Oligocene and Miocene; 3 fossil species have been described, 1 from the Florissant, Colorado beds, and 1 from Radoboj, Croatia, and 1 from Camoins, France. While the Asilinae and the Dasypogoninae date back to the Eocene, only 12 fossil asilids have been described from both Eocene and Oligocene. These are so few, in fact, that statistically their numbers would not rule out the likelihood that *Leptogaster* Meigen may also date back further.

KEY TO GENERA OF LEPTOGASTRINAE

1. Anal part of wing greatly reduced; only 3 posterior cells present and the discal cell absent. Prehumeral part of wing greatly lengthened and forming a stalk equivalent to fully half the total wing length; eyes beneath the highly placed antenna completely holoptic. Abdomen very long and exceedingly slender; halteral stalks exceptionally long with prominent, clubbed discs; empodium well developed . . . . Eurhabdus Aldrich
   Anal area of wing developed even though narrowed . 2
2. Only 4 posterior cells and only 1 anal cell present. Leptopteromyia Williston
   Five posterior cells and 2 anal cells present 3
3. Anal cell open and usually widely open 4
   Anal cell closed and usually with a long stalk 15
4. Prothorax medially with a short, distinct protuberance. Hind femur rather swollen, attenuate only on the basal third or less, the tibia unmodified. Third antennal segment spindlelike and always 2 times as long as the first two segments combined. Mesonotum and pleuron in part with dense, flat-lying pile; empodium absent or rudimentary . . . . Euscelidia Westwood
   Pronotum without such protuberance 5
5. Radial and medial veins margined on either side with regularly spaced, long, conspicuous setae. Third antennal segment laterally compressed and attenuate basally, its dorsal apex with a short or long style or bristle. Anal cell widely open. Empodium absent; medial claw shorter than lateral claw (including *Shannomyioleptus* Carrera). Schildia Aldrich
   These veins with only the usual dense, minute micropubescence; third antennal segment sometimes a little narrowed at base, but attenuate distally, the style well developed 6
6. Empodium completely absent or rudimentary 7
   Empodium well developed 10
7. Front strongly divergent downward, and below the antenna the divergence of the face is continued even more strongly, so that the face above the epistoma is unusually wide. Third antennal segment 2 or 3 times as long as the combined length of the first two segments, stout, greatly tapered toward the apex and bearing a quite short, swollen style. Face prominent, as wide as high, with a few, fine hairs and the mystax confined to a transverse row of bristles along the epistomal margin. Anal cell closed in the margin . . . . Acronyches Williston

Front convergent or at least with the sides parallel; face moderately divergent below. Anal cell widely open. Style of antenna long and slender 8

8. Basal part of wing greatly narrowed; a complete complement of cells present; wing lanceolate in shape; anal cell very widely open. Antennal style nearly as long as the third segment, thick and swollen, except at base and spine-tipped; proboscis exceptionally robust. Fusion of third branch of medius and first branch of cubitus veins extensive; occiput prominent. Distal half of hind tibia and first 3 tarsal segments with a dense, conspicuous fringe of long, stiff pile . . . . . DOLICHOSCIUS Janssens

Wing oval in shape, the basal part not narrowed . . . 9

9. Empodium completely absent; hind femur conspicuously swollen distally, the tibia stout, except near the base . . . . PSILONYX Aldrich

Empodium rudimentary; hind tibia more or less dilated in the middle; apical segment of hind tarsus thick, swollen, convex . . . . SINOPSILONYX Hsia

10. Hind femur gently swollen from the base and bearing dense pile on all surfaces, subappressed laterally, erect elsewhere. Hind tibia without conspicuous pile but with 4 or 5 stout, dorsal bristles and 2 or 3 ventral bristles. Margin and disc of scutellum with considerable, long coarse hairs. Wings with diffuse spots or bands. Sides of lateral metasternum not encroaching behind the coxae, the postmetacoxal area membranous.
SYSTELLOGASTER Hermann

Hind femur not swollen and hirsute as described above. Wings without spots or bands 11

11. Third antennal segment relatively short, the base swollen, the apex narrowed and attenuate; style of varying length. Hair flocks never present on the middle of the inner side of the hind femur. Face usually protuberant below but plane with the eye margin above 13

Third antennal segment relatively elongate, drawn-out, slender and tapered 12

12. Hind tibia laterally with only 1 bristle at middle and 1 at apex . . . . TIPULOGASTER Cockerell

Hind tibia with a series of more or less stout bristles.
MESOLEPTOGASTER Frey

13. A median band of hairs on second abdominal tergite. First and second sternites narrow or obsolete, if present, fused to second tergite. Anterior intercalary vein sharply angulate. Empodium present. The superior forceps usually tapered to a point (subgenus of *Leptogaster* Meigen) . . . . BEAMEROMYIA Martin

Without a median band of hairs on second abdominal tergite. Anterior intercalary vein usually straight, but not in all species 14

14. Hind femur long, but little swollen or dilated distally; legs generally rather long. Female ninth tergite notched, resulting in 2 narrow, lateral lobes (subgenus of *Leptogaster* Meigen) . . . . APACHEKOLOS Martin

Hind femur relatively more swollen. Ninth tergite not notched . . . . LEPTOGASTER Meigen

15. Hind femur, tibia or both swollen and dilated 16

Hind femur or tibia not conspicuously thickened, dilated and swollen. Hind femur with a medial flock of long hairs near the middle 20

16. Prothorax medially with a short, distinct protuberance. Hind femur rather swollen; hind tibia simple.
EUSCELIDIA Westwood

Prothorax without medial protuberance 17

17. Empodium absent. Third antennal segment large, long, stout and tapered, the style short and stout 18

Empodium present, usually nearly half as long or more than half as long as claw 19

18. Front divergent from the vertex downward; length of face more than half the length of the subfacial sclerites; pile of face limited to a few, fine, scattered hairs. The mystax reduced to a transverse row of a few (3 pairs) stout bristles placed midway between antenna and proboscis. Hind femur with a limited, distal band of hairs on medial surface only. Medium-size flies . ACRONYCHES Williston

Front slightly divergent. Face very short, little more than a third the length of the subfacial sclerites and with a medial tuft of long, stout, ventral bristles and numerous, slender bristles and bristly hairs reaching to the antenna. Hind femur with a dense brush of long, coarse hairs on dorsal and medial surfaces confined to the outer, swollen half of femur. Very large flies . . MEGONYX, new genus

19. Hind femur swollen, tibia simple. Hind femur dorsally with a prominent, complete brush of long, dense pile, the ventral surface with a similar brush on the distal half; third antennal segment very long, more than 2 times as long as either the basal segments combined, or the style. Face reduced in length; mystax reduced and petiole long; wings dark . . . . OPHIONOMIMA Enderlein

Hind femur and tibia both swollen and with complete dorsal and ventral brushes of long, dense pile. Wings often maculate with pattern of clear areas, or wholly dark; antennal style approximately as long as the third segment . . . . LASIOCNEMUS Loew

20. The discal cell ends with a single, rectangular crossvein, which is the medial crossvein; the anterior branch of the fourth vein forks far toward the base of the wing. The prosternum is fully and widely united to the lateral propleuron . . . . AMMOPHILOMIMA Enderlein

The upper anterior portion of intercalary vein is very little longer than the medial cross vein and in consequence the anterior branch of the fourth vein forks close to the medial crossvein. Prosternum with a distinctly broken or greatly reduced connection to the lateral prosternum . . . . LAGYNOGASTER Hermann

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Genus *Leptogaster* Meigen

FIGURES 200, 202, 590, 591, 598, 606, 1175, 1183B, 2242, 2278

Leptogaster Meigen, Mag. Insektenkunde, vol. 2, p. 269, 1803. Type of genus: *Asilus cylindricus* De Géer, 1776, as *Asilus tipuloides* Fabricius, 1775, by monotypy.

Gonypes Latreille, Histoire naturelle . . . des insectes, vol. 14, p. 309, 1805. Type of genus: *Asilus cylindricus* De Géer, 1776, as *Asilus tipuloides* Fabricius, 1775, by monotypy.

Engel (1925) gives 1776 for date of *Asilus tipuloides;* Kertész (1909) gives 1775 for this date. If the latter date holds, then *Asilus tipuloides* is a good species and *Asilus cylindricus* is a synonym.

Leptogaster has 2 subgenera, *Apachekolos* Martin and *Beameromyia* Martin.

Slender, elongate flies with slightly clavate abdomen and elongate hind legs. The palpus has only one segment and is of characteristic, clavate form with blunt, obtuse, rounded apex. The alula is absent and the face strongly divergent. Moreover, the pulvilli are always lacking and all wing cells open widely, including the anal cell. Length 5 to 30 mm., these extremes being uncommon.

Head, lateral aspect: The head is medium length, the face slightly produced on the lower fourth, always plane with the eye beneath the antenna and sometimes gradually but very slightly extended near the epistoma. The occiput is prominent through all the middle portions of the head, sloping gradually down to the eye level, near the vertex and also below. The proboscis is prominent, stout, bluntly pointed and cylindrical; usually directed forward, it extends well beyond the face. Palpus of one segment, moderate in size and clavate. The antenna is attached near the upper fourth of the head and is moderately elongate and slender; the first two segments are short and rather beadlike. The third segment is usually elongate and attenuate, especially at the apex and about twice as long as the first two; it may be considerably shorter, and no longer than these. The style is thick, distally dilated and varies from half to twice the length of the third segment. It has a small, short bristle at the apex. First two segments with bristly pile ventrally at the apex.

Head, anterior aspect: The face is generally narrow at the antenna, usually varying from a twentieth to a tenth the head width, but sometimes almost eliminated by the encroachment of the eyes on the upper half of the face, producing a near holoptic condition. The face is always strongly divergent below, the subepistomal area small, oblique, concave and pubescent. Face pubescent, apilose, with 1 or 2 close-set rows of generally strong or sometimes quite weak bristles immediately above the epistomal margin. They may consist of as few as 2 pairs. Front small, pubescent, divergent, the vertex moderately excavated with nearly vertical sides or sometimes scarcely at all. Generally there is a recess posteriorly, the ocellarium moderately large and set anteriorly forward and pubescent only.

Thorax: The mesonotum is high, abrupt anteriorly and often overhanging the pronotum with the medial portion more protuberant. The whole surface may be pubescent, pollinose or largely bare. The pile is quite scanty; weak, short, acrostical, bristly hairs are present and short, fine, dorsocentral elements present posteriorly. The posterior suture is quite far to the rear and often behind the hind coxa. The lateral complement of bristles, generally stout, is 1 notopleural and 1 supraalar bristle. Scutellum thin, flattened and pollinose, sometimes with a few, minute setae on the rim. Metanotal callosity pollinose only. Pleuron pollinose or pubescent, with a little, fine pile on the anterodorsal mesopleuron and anterior sternopleuron, and rarely a few hairs on the propleuron. The pronotum, pteropleuron, and hypopleuron are all without pile, and usually the metapleuron as well. The metapleuron is reduced and compressed by the great development of the metasternum, which forms a long, complete, chitinized arch in many species and in any case is elongate. Prosternum dissociated in some species, in others undissociated.

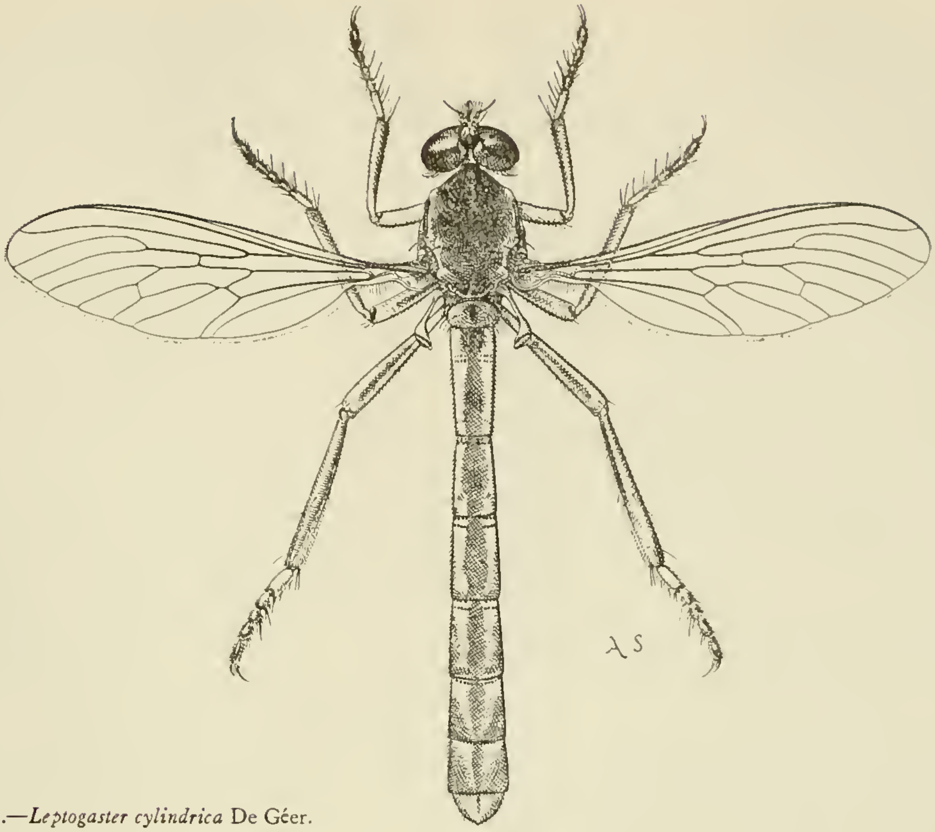
Legs: All the femora and the tibiae elongate, especially the hind pair, which are often very long; usually all of the femora are more or less dilated or swollen distally but this is accentuated on the hind pair. Pile of legs dense, fine and subappressed on the dorsal and lateral and posterior surfaces. Often the pile forms dense brushes of variable distribution of nearly erect, fine pile on the ventral surface of the hind femur, the other 4 femora nearly bare ventrally, and such brushes may be absent on the hind femur. Bristles are almost absent, being nearly restricted to the apices of the femora and tibiae, more rarely there are a few bristles, 1 or 2 in number on the dorsal surface of the tibiae; in some species there may be on the hind tibia 2 anterior bristles, 3 or 4 ventrolateral bristles, on the middle tibia 4 posteroventral bristles, the anterior tibia being similar. Apical bristles are strongly developed, the hind tibia having 5 large bristles and 1 or 2 minute bristles. Anterior tibia never with spine. Basitarsus as long as the next 2 and sometimes the next 3 segments. Claws stout, apposed, gently curved, sharp; the empodium from one-third to two-thirds as long as the claws, or absent in one subgenus; pulvilli always absent.

Wings: The wings are slender, the marginal and all posterior cells and the anal cell widely open. Alula absent, ambient vein complete. The medial crossvein forming the discal cell is generally rectangular; the furcation of the fourth vein often lies at a considerable distance from this crossvein. The posterior or third branch of the medius and the anterior branch of the cubitus or posterior intercalary vein are often fused for a long distance.

Abdomen: The abdomen is slender, elongate, reaching well beyond the wings, cylindrical and pollinose with fine, scanty, subappressed pile which tends to be setate posteriorly. Only the first tergite has lateral bristles. Male with eight tergites, the eighth reduced in length, especially toward the middle. Females with eight well developed tergites. Male terminalia generally moderate in size, never rotate, the superior forceps short, more or less slender apically but in some species elongate. The forceps sometimes bear long, extraordinary prongs or processes. The dorsal proctiger large and oblique. The gonopod and hypandrium appear sometimes to form a more or less broad, convex, fused, ventral, bulbous structure, or the hypandrium may be narrow and elongate but distinct. Female terminalia short and inconspicuous, mostly recessed beneath the eighth tergite.

Leptogaster is the largest genus within the subfamily, containing about 120 species. There are numerous species in North America but few in Europe; the genus is especially well developed in southern Asia and the South Pacific and members are often found on islands. The adults frequent grassland and especially the herbage deep within forests. They hang by the forelegs from tip of leaves when feeding or mating. Fossil species are known as far back as the Oligocene. The venation of *Leptogaster* is certainly highly generalized and strongly resembles the venation of certain tipulids, which are also slender, long-legged forest types. A few species are only 6 or 7 mm. long and correspondingly threadlike and delicate.

Distribution: Nearctic: *Leptogaster aegra* Martin (1957); *altacola* Martin (1957); *arborcola* Martin



TEXT-FIGURE 18.—*Leptogaster cylindrica* De Géer.

(1957); *arenicolus* James (1937); *aridus* Cole (1919); *atridorsalis* Back (1909); *bifidus* Hardy (1942); *brevicornis* Loew (1872); *californica* Martin (1957); *carolinensis* Schiner (1866) [=*gigas* Macquart (1838); *nitidus* Macquart (1838)]; *chrysops* Martin (1957); *coloradensis* James (1937); *confusio* Martin (1957); *crinita* Martin (1957); *cultaventris* Martin (1957); *disfascia* Martin (1957); *eudicranus* Loew (1874); *flavicornis* Wulp (1869); *flavipes* Loew (1862) [=*favillaceus* Loew (1862), *loewi* Banks (1914)]; *floridensis* Johnson (1913); *fornicata* Martin (1957); *hesperis* Martin (1957); *hirtipes* Coquillett (1904); *incisuralis* Loew (1862); *kawiensis* Martin (1957); *lacinia* Martin (1957); *lanata* Martin (1957); *lunula* Martin (1957); *macula* Martin (1957); *monticola* Martin (1957); *murinus* Loew (1862); *nitoris* Martin (1957); *obscuripennis* Johnson (1895); *occidentis* E. Hardy (1942); *ochraceus* Schiner (1867); *panda* Martin (1957); *parvoclava* Martin (1957); *patula* Martin (1957); *pictipes* Loew (1862) [=*?varipes* Loew (1862)]; *prairiensis* Martin (1957); *punicea* Martin (1957); *rubida* Wiedemann (1821); *salvia* Martin (1957); *scapularis* Bigot (1878); *schaefferi* Back (1909); *silvacola* Martin (1957); *tenuipes* Loew (1862); *texanus* Bromley (1934); *virgatus* Coquillett (1904); *vulgaris* Martin (1957); *weslacensis* Bromley (1951).

Neotropical: *Leptogaster annulipes* Walker (1855); *apicalis* Enderlein (1914); *audouinii* Macquart (1838); *basalis* Walker (1855); *bicolor* Macquart (1848); *cingulipes* Walker (1857); *clavipes* Johnson (1897); *longipes* Johnson (1894); *clavistyla* Rondani (1848); *concinnata* Williston (1901); *crocea* Williston (1901); *cubensis* Bigot (1856); *distincta* Schiner (1867); *dorsalis* Williston (1901); *ferruginea* Walker (1855); *fervens* Wiedemann (1830); *gracillima* Walker (1855); *intima* Williston (1901); *kamerlacheri* Schiner (1857); *lerneri* Curran (1953); *multicincta* Walker (1851); *niger* Wiedemann (1828); *nubeculosa* Bigot (1878); *obscuripes* Loew (1862); [=*ramoni* Jaennicke (1867)]; *pubescens* Curran (1934); *roederi* Williston (1896); *spinitarsis* Bromley (1951); *tornowii* Brèthes (1904); *triungulata* Williston (1901); *tropica* Curran (1934); *truquii* Bellardi (1861); *venustus* Bromley (1929); *vitripennis* Schiner (1867); *vorax* Curran (1934).

Palaearctic: *Leptogaster abdominalis* Hsia (1949); *angusta* Hsia (1949); *antenorea* Lioy (1864); *auripulverella* Séguy (1934); *basilaris* Coquillett (1898); *biliventris* Hsia (1949); *calceata* Engel (1925); *candidata* Séguy (1930); *crassipes* Hsia (1949); *curvivena* Hsia (1949); *cylindrica* De Géer (1776) [=*dorsalis* Dahlbom (1851), *fusca* Meigen (1804), *livida* Geoffroy in Fourcroy (1785), *tipuloides* Fabricius (1775)], *cylindrica pedunculata* Loew (1847); *dorsopicta* Hsia (1949); *elbaiensis* Efflatoun (1937); *faragi* Efflatoun (1937); *flaviventris* Hsia (1949); *fragilissima* Frey (1936); *fumipennis* Loew (1871); *furculata* Hsia

(1949); *gracilis* Loew (1847); *guttiventris* Zetterstedt (1842) [=*cylindrica* Meigen (1820) not De Géer, ?*pallipes* Rossi (1840)]; *helvola* Loew (1870); *hispanica* Meigen (1838) [=*nigricornis* Loew (1847)]; *hopelensis* Hsia (1949); *laoshanensis* Hsia (1949); *latestriata* Becker (1906); *linearis* Becker (1906); *longitibialis* Efflatoun (1937); *maculipennis* Hsia (1949); *minomensis* Matsumura (1916); *nigra* Hsia (1949); *nitida* Macquart (1826) [=*variegata* Loew (1847)]; *nitidus* Wiedemann (1828); *pachypygialis* Engel (1925); *palparis* Loew (1847); *pubicornis* Loew (1847); *pumila* Macquart (1834); *pusilla* Jaennicke (1867); *sinensis* Hsia (1949); *spadix* Hsia (1949); *straminea* Becker (1906); *subtilis* Loew (1847).

Ethiopian: *Leptogaster agrionina* Speiser (1910); *albitarsis* Macquart (1846); *bicingulata* Bezzi (1906); *brunneus* Loew (1858); *cressoni* Bromley (1942); *datis* Walker (1849); *entebbensis* Oldroyd (1939); *freyi* Bromley (1951) [=*madagascarensis* Bromley (1942)]; *lambertoni* Bromley (1942); *ludens* Curran (1927); *nenemusha* Speiser (1910); *nitens* Bromley (1947); *ochricornis* Loew (1858); *pictipennis* Loew (1858); *proculus* Walker (1849); *rufirostris* Loew (1858); *stigmaticalis* Loew (1852); *tenuis* Loew (1858); *validus* Loew (1858).

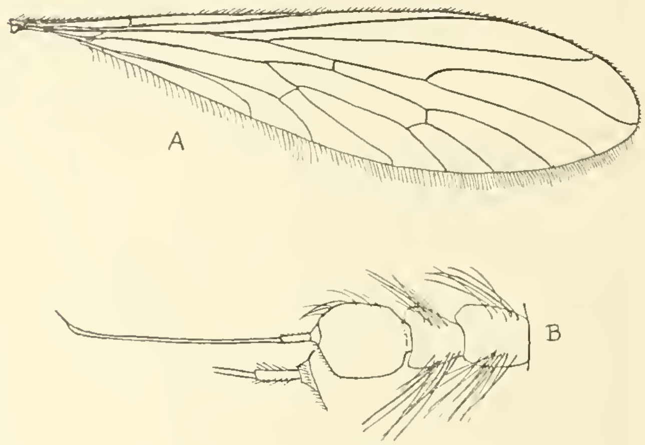
Oriental: *Leptogaster albimana* Walker (1859); *annulipes* Doleschall (1858); *appendiculata* Hermann (1914); *bilobata* Hermann (1917); *cheriani* Bromley (1938); *cilipes* Frey (1937); *coarctata* Hermann (1914); *contermina* Edwards (1919); *crassitarsis* Frey (1937); *exacta* Walker (1862); *formosana* Enderlein (1914); *inutilis* Walker (1857); *javanensis* de Meijere (1914); *levis* Wulp (1872); *longicauda* Hermann (1917); *longifurcata* de Meijere (1914); *macilenta* Wulp (1872); *marion* Walker (1849); *occlusa* de Meijere (1914); *ophionea* Frey (1937); *pilosella* Hermann (1914); *sauteri* Hermann (1914); *setifer* Frey (1937); *signata* de Meijere (1914); *similis* Hsia (1949); *simplex* Bigot (1878); *spinulosa* Hermann (1914); *spinulosa* de Meijere (1914); *tenerrima* de Meijere (1914); *tricolor Walker* (1857); *trifasciata* de Meijere (1914); *trimucronata* Hermann (1914); *unihamata* Hermann (1917); *varipes* Wulp (1880).

Australian: *Leptogaster aestiva* White (1914); *angelus* Osten Sacken (1881); *antipoda* Bigot (1878); *australis* Ricardo (1912); *autumnalis* White (1917); *bancrofti* Ricardo (1912); *brevitarsis* Hardy (1935); *crockeri* Curran in Curran, Alexander, and Cresson (1936); *dissimilis* Ricardo (1912); *ferruginea* Walker (1859); *fulvipes* Bigot (1878); *geniculata* Macquart (1849); *habilis* Wulp (1872); *hirticollis* Wulp (1872); *inflata* Osten Sacken (1881); *longipes* Walker (1859); *magnicollis* Walker (1862); *moluccana* Doleschall (1857); *munda* Walker (1860); *occidentalis* White (1914); *pedanius* Walker (1849); *rufithorax* de Meijere (1913); *tarsalis* Walker (1861); *tillyardi* Hardy (1935); *unicolor* Doleschall (1858); *vernalis* White (1914); *whitei* Hardy (1940).

Oceania: *Leptogaster praefica* Bezzi (1928).

Country unknown: *Leptogaster glabrata* Wiedemann (1828); *vittata* Wiedemann (1828).

Immature stages of *Leptogaster* species have been discussed or described by Beling (1875, 1882) and Malloch (1917); Melin (1923) illustrates and describes larva and pupa of *Leptogaster cylindrica* De Géer (1776).



Text-Figure 19.—*Leptogaster* (*Beameromyia*) *punicea* Hardy: A, wing. B, antenna.

Subgenus *Beameromyia* Martin

Beameromyia Martin, Bull. Amer. Mus. Nat. Hist., vol. 3, p. 355, 1957. Type of subgenus: *Leptogaster pictipes* Loew, 1862, by original designation.

Distinctly small, slender flies with the typical facies of *Leptogaster* Meigen. They are characterized by the scanty band of fine, erect hairs across the middle of the second abdominal tergite; not well developed in all species, and by the nearly rectangular relationship of the upper, anterior intercalary vein to the first branch of the medius. Head, antenna, and thorax as in *Leptogaster* Meigen. Hind femur unusually stout towards the apex, the hind tibia unusually robust and swollen, but towards the base as narrow as the base of the hind femur. Empodium stout and three-fourths as long as the claw. Wing with the anal cell widely open. Last branch of radius nearly straight, the anterior branch of the third vein rather strongly arched. Male terminalia with primary, secondary and tertiary penis valves and a median process beneath the valves. Length 4½ to 8 mm. with the majority of the species being 6 to 7 mm. in length.

Head, lateral aspect: The head is very much as in *Leptogaster*, the face scarcely appearing at all in profile and only minutely above the epistomal margin. Occiput rather well developed on the middle of the profile but only towards the middle of the head. It bears submarginally a few fine hairs, some of which extend deeply inward. From the dorsal aspect the eye retreats rather strongly anteriorly leaving much of the occiput exposed, and shallowly concave medially. Proboscis slender, a little pointed at the apex and gently narrowed toward the base. It has a few fine hairs at the apex and 1 or 2 hairs ventrally near the base. Palpus exceptionally minute. Antenna of the usual form in *Leptogaster* with the style short.

Thorax: The thorax is as in *Leptogaster*, the anterior portion of the mesonotum tends to overhang the pronotum but is rounded and blunt. Surface pollinose with a stout bristle on the notopleuron, one above the base of the wing but with the postalar callosity and scutellum only with 1 or 2 fine hairs and some pollen. Disc of scutellum sometimes with very fine micropubescence.

Legs: The legs are not unusual except that the hind femur tends to be rather more than ordinarily swollen on the outer third and the outer two-thirds of the hind tibia is likewise rather robust. The pile of the hind tibia is moderately abundant, oblique and stiff but does not form distinct bristles with the exception perhaps of 1 or 2 weak elements at the apex and the midtibia tends to have 1 or 2 long, quite slender, bristly hairs ventrally. Empodium long and rather stout.

Wings: The wings are slender and greatly narrowed towards the base. Anal cell widely open, posterior crossvein short or absent. Upper anterior intercalary vein joins the first branch of the medius at or nearly at a right angle. The posterior branch of the third vein almost straight but the anterior branch rather strongly arched and divergent.

Abdomen: The abdomen is similar to *Leptogaster* but with a circlet or band of hairs of variable length around the middle of the second tergite. In some species it is rather well developed, in others poorly differentiated. The male superior forceps tapers to a point and is often divergent laterally, expanded apically and notched. The male terminalia have primary, secondary and tertiary penis valves with a medial process immediately below.

Description drawn from paratypes of *Beameromyia lacinia*, *punicea*, and *chrysops*.

Subgenus *Apachekolos* Martin

Apachekolos Martin, Bull. Amer. Mus. Nat. Hist., vol. 3, p. 352, 1957. Type of subgenus: *Leptogaster scapularis* Bigot, 1878, by original designation.

A small group of *Leptogaster* Meigen species in which the female ninth tergite has two narrow, lateral lobes forming a notchlike figure. The male superior forceps are deeply forked with the lower arm broader and wider than the dorsal prong. The femora tend to be elongate and on the whole a little less clavate distally than in *Leptogaster* in the restricted sense. Five species were placed here by Martin; *Apachekolos tenuipes* Loew from the eastern and southern United States, and *Apachekolos scapularis*, *weslacensis*, *crinita* and *confusio* from the southwestern states.

Genus *Tipulogaster* Cockerell

FIGURE 199

Tipulogaster Cockerell, Entomologist, vol. 46, p. 214, 1913. Type of genus: *Leptogaster badius* Loew, 1862, by original designation.

These flies differ from *Leptogaster* Meigen primarily in the long, third antennal segment, which is quite slender and attenuate and more than twice the combined length of the short basal segments. The style is not unusually long and, in fact, is comparatively short in proportion to the length of the third segment. The distal fork of the fourth vein is comparatively close to the medial crossvein so that the upper anterior intercalary vein is but little longer than the discal crossvein. In the type of genus of *Leptogaster* this fork is closer to the anterior crossvein. Many species of *Leptogaster* and *Psilonyx* Aldrich have the venation rather similar on the whole to *Tipulogaster badius*.

From exotic genera with a similarly elongate third antennal segment it is separated by the posterior ventral encroachment of the lateral metasternum; these 2 extensions touch but do not fuse and a membranous area remains behind the postcoxa. Also the third antennal segment is not flattened and the hind femur bears no medial hair flocks. The anterior branch of the cubitus and the posterior branch of the medius are fused for a considerable distance, perhaps twice the extent found in *Leptogaster cylindrica*. The arms of the superior forceps are of nearly equal width. Primary penis valves situated in a U-shaped configuration and lying flatly on the dorsal surface of the ninth sternite; between these arms are 2 lobes which bear white hairs on their inner surfaces. Length 14 to 16 mm.

Distribution: Nearctic: *Tipulogaster badius* Loew (1862) [=*testaceus* Loew (1862)].

Genus *Psilonyx* Aldrich

FIGURES 603, 2064

Psilonyx Aldrich, Proc. U.S. Nat. Mus., vol. 62, p. 5, 1923. Type of genus: *Leptogaster annulatus* Say, 1823, by original designation.

This genus is quite like *Leptogaster* Meigen, being distinguished by the complete absence of empodium. The fork of the first branch of the medius is distal, opposite the posterior crossvein and no longer than it. Length 10 to 15 mm.

Head, lateral aspect: The head is similar to *Leptogaster* but a little longer, strongly convex anteriorly and posteriorly with prominent occiput over the middle of the head and weak supraoccipital bristles. The face tends to be greatly reduced by an encroachment of the eye almost to the point of holopticism and the central anterior facets are very greatly enlarged. Head and antenna otherwise as in *Leptogaster*.

Thorax: The thorax is similar to *Leptogaster.*

Legs: The hind femur is strongly dilated beyond the middle; on the whole, this pair of legs is somewhat less elongate than in many species of *Leptogaster.*

Wings: In the wings the anterior crossvein is rectangular, entering the discal cell opposite the end of the second basal cell. The end veins of the second basal cell are generally not or but little fused. The third vein forks opposite or even a little before the posterior crossvein.

Abdomen: The abdomen is similar to *Leptogaster.*

Distribution: Nearctic: *Psilonyx annulatus* Say (1823) [=*histrio* Wiedemann (1828)].

Neotropical: *Psilonyx macropygialis* Williston (1901); *magnicauda* Curran (1934); *micropygialis* Williston (1901).

Palaearctic: *Psilonyx annuliventris* Hsia (1949); *humeralis* Hsia (1949).

Oriental: *Psilonyx nigricoxa* Hsia (1949).

Genus *Sinopsilonyx* Hsia

Sinopsilonyx Hsia, Sinensia, Academia Sinica, Nanking, vol. 19, p. 27, 1949. Type of genus: *Sinopsilonyx tibialis* Hsia, 1949, by original designation.

This genus is allied to *Psilonyx* Aldrich, and I quote the original description:

> Allied to *Psilonyx*, distinguished by the empodia present though rudimentary, the disc of mesonotum shining and bare, the tibia laterally flattened and the apical segment of hind tarsi hump-backed.
>
> Head widely transverse, wider than the thorax; face very narrow; mouthedge slightly produced in front and bearing a few weak bristly hairs; hind head tomentose but without strong postocular bristles; ocelli placed on a bare elevated knob. Proboscis long, extending out horizontally; palpi one-segmented. Antennae (Fig. 4, A) closely approximate at the base, not longer than the head; two basal segments equally short, third segment long-oval, about as long as two basal together; style linear, about twice as long as the third segment. Collar short and bare.
>
> Thorax somewhat globular, almost shining and bare; praesutural and supra-alar bristles present; pleura covered with tomentum. Scutellum small, concealed beneath the scutellum.
>
> Abdomen very long and slender, dangling downwards, slightly widened at the apex, covered thinly with tomentum and hairs especially on the terminal segments. Genitalia of the male rather knobbed and complex.
>
> Legs long and thin, the hind femora distinctly clavate, the hind tibiae (Fig. 4, B) dilated in the middle and slightly bilaterally compressed; the legs are almost unarmed, but the femora have some subapical bristles, the tibiae have inconspicuous bristly hairs on the upper-inner side and with long thin spurs. Tarsi with strong bristles at the tip of each of the first four segments; the apical segment (Fig. 4, B) of hind tarsi strongly convex, thickened and slightly longer than basal segment; the three middle segments equally short and together about as long as the basal. Pulvilli absent, claws long and gently curved. Empodia (Fig. 2, B) rudimentary.
>
> Wings small, shorter than abdomen; marginal cell wide open; anal cell open, long and narrow, but dilated at the middle and convergent to the wing margin; no small cross-vein. Halteres with an usually long stem.

Distribution: Palaearctic: *Sinopsilonyx tibialis* Hsia (1949).

Genus *Mesoleptogaster* Frey

Figures 193, 604, 1179, 1187, 1589a–c, 2046, 2054

Mesoleptogaster Frey, Notulae Entomologicae, Helsinki, vol. 17, p. 40, 1937. Type of genus: *Mesoleptogaster fuscatipennis* Frey, 1937, by original designation.

These flies were separated from *Leptogaster* Meigen by the presence of strong bristles on the outer margin of the hind tibia and the relative length of the third antennal segment which is four times as long as broad. In other respects this genus is quite like *Leptogaster.* Length 9 to 18 mm.

Head, lateral aspect: The face is not visible in profile and the anteriorly placed ocelli only barely visible. Occiput black with greyish white pollen and a scanty row of long, fine, brownish yellow pile on the lower portion. Beginning at the middle above there are 11 short, stout, curved bristles set not far from the eye margin. Proboscis subcylindrical, very slightly compressed laterally with a low, dorsal ridge only on the basal third. Palpus extremely short, of one segment. Antenna shorter than the head and slender; first two segments quite short, third long, strongly attenuate from near the base with a slender style as long as the segment.

Head, anterior aspect: Face below antenna an eighteenth of head width and strongly divergent below. The face with no pile, very little pubescence, and with 1 pair of long, slender, bristly hairs above epistoma and another pair of weaker hairs. Front and vertex only slightly divergent. Vertex deeply excavated. Ocellar protuberance quite small and low with slanting sides and without pile or bristles. The anterior eye facets are greatly enlarged but over a very small central medial area.

Thorax: The mesonotum rather high, strongly abrupt in front but gently convex. It is approximately of the same height and shape as *Leptogaster* Meigen with the medial portion more prominent and raised into a gently rounded ridge on the anterior aspect of the mesonotum. Humerus polished and bare, with 2 minute bristly hairs. Mesonotum polished and with almost no pile. There is a scanty row of dorsocentral bristles, a small patch of pile in front of the notopleuron, and a wide, greyish white, micropubescent band of pollen from the suture to the humerus. Bristles present as follows: 1 very stout, moderately long, black notopleural, 1 still longer, equally stout, supra-alar, none on postalar and 5 pairs of moderately long, stout, black bristles on the scutellar margin. Scutellar disc flattened, micropubescent, with a very few, short setae. Posterior portion of mesonotum gently sloping and not steep as in *Psilonyx* Aldrich. Color of mesonotum dark reddish sepia with obscure, wide, black, submedial stripes and an obscure posterior medial stripe. The posterior two-fifths of the mesonotum, including the postalar, and laterally to the suture, are all greyish white pollinose. Whole pleuron micropubescent; mesopleuron above and anteriorly with numerous, fine, long, yellow hairs. Propleuron also with yellow hairs. Pronotum without pile. Metapleuron with 4 or 5 weak, short bristles; hypopleuron micropubescent only.

Legs: Hind femur slightly and gradually thickened towards the apex, densely short appressed pilose above and below. The dorsal surface has 2 short, tuberculate bristles at or just beyond the middle. The ventral surface has 3 bristles. The apex has 3 stout, slightly longer bristles of which 1 is dorsolateral, 2 are dorsomedial. Tibia as long as the femur, equally slender throughout except at the apex, which is somewhat swollen and with very stout, sharp, oblique bristles. The lower or more ventral bristles are 4 in number, beginning at the basal third, ending at the distal fifth and somewhat longer than the 8 dorsal bristles, which begin nearer the base and end nearer the apex; apex with a minute pair of dorsal, 2 long lateral, 1 long, stout, medial, and 2 extremely long, very stout, ventral bristles. Middle femur much shorter and distinctly less than half as long as hind femur, with only a single, very strong, black posterodorsal bristle; its tibia has only 2 bristles, posterior in position and distal. Apex below with 3 bristles, middle one short, lateral bristles long and stout, all of them black. Anterior femur with a short bristle and the apex posteriorly with a bristle; the tibia has 3 short posterior bristles beginning just beyond the middle. The red apical bristles consist of 2 anterior, 1 posterior, and 2 ventral bristles, of which 1 is extremely long and stout. All tarsal bristles black. Anterior basitarsus with 3 posterior and 2 anterior bristles. Claws sharp, long and only slightly curved, entirely black and convergent. Pulvilli absent; empodium very stout and short, only one-third as long as the claw or shorter, and bladelike, curved, and sharp.

Wings: The fourth vein forks near the middle of the discal cell; as a result the basal section of the anterior intercalary vein is quite long; the posterior crossvein is rectangular. The first and second submarginal cells and the first and second posterior cells are quite long, with nearly parallel sides. End veins of second basal cell fused. Ambient vein complete.

Abdomen: The abdomen is of the usual *Leptogaster* type; sides of first tergite with 2 rather short, stout black bristles in a vertical and lateral row; below them a group of 4 long, pale, reddish yellow bristles. Posterior corners laterally of the remaining tergites with tufts of long, yellowish hair. First and second tergites entirely cylindrical.

Distribution: Palaearctic: *Mesoleptogaster bicoloripes* Hsia (1949); *fulvicrus* Hsia (1949).

Ethiopian: *Mesoleptogaster madagascariensis* Frey (1937).

Oriental: *Mesoleptogaster convergens* Frey (1937); *fuscatipennis* Frey (1937); *gracilipes* Hsia (1949); *trimaculata* de Meijere (1914).

Genus *Ammophilomima* Enderlein

FIGURES 203, 600, 1297

Ammophilomima Enderlein, Wiener Ent. Zeitung, vol. 33, p. 155, 1914. Type of genus: *Ammophilomima imitatrix* Enderlein, 1914, by original designation.

Rather large species, in general similar to *Leptogaster* Meigen. They differ in the closed and usually long, stalked, anal cell, the complete or almost complete chitinization of the postmetacoxal area of the metasternum, and the long, third antennal segment with short style. They are more wasplike, with the abdomen tending to be clavate and terminally swollen. The hind legs are exceptionally elongate, the hind femur scarcely dilate at apex, and characteristically with a small, isolated hair flock on the middle of the inner surface of this femur. Hind tibia with 5 or 6 stout, dorsal bristles distributed over its length, besides one at apex. Wings generally long and slender. Proboscis constricted at base from a dorsal aspect. From *Lagynogaster* Hermann they are distinguished by the prosternum being broadly fused to the lateral propleuron and by the extremely long, upper, anterior, intercalary vein, which is 5 or 6 times as long as the medial crossvein. Length 9 to 26 mm.

Head, lateral aspect: The face is completely plane with the eye, except for a small protrusion immediately above the epistoma. The occiput is narrow and in profile completely obliterated; the eye is laterally extended and turned in medially behind, so that a considerable portion of the posterior eye margin faces backward. The proboscis is slender and elongate and distinctly constricted near the base. The palpus, composed of one segment, is moderately elongate, clavate, obtuse at tip, and with 3 or 4 apical hairs.

Head, anterior aspect: The head is wide and flattened; the face on the dorsal portion is like *Psilonyx* Aldrich, greatly narrowed and the eyes almost holoptic, the central facets grossly enlarged. The face is pubescent and on the small protrusive ridge above the epistoma it bears 2 pairs of slender bristles. The front is quite narrow and the vertex excavated with several stout, deep-set, postvertical bristles.

Thorax: The thorax is chiefly bare with pollen or pubescence laterally and with well developed and moderately long, bristly hairs in the acrostical and dorsocentral rows. Pleuron micropubescent with rather abundant pile on the whole upper half of the mesopleuron, most of the metapleuron and pteropleuron. Prosternum fused.

Legs: Hind legs exceptionally long and slender; the femur very little swollen, the increase in girth being gradual from the base. This femur bears scanty, fine, sharp, subappressed setae on all sides including the lower surface and a small medial hair-flock on the medial third. Apex with 2 stout bristles medially, one laterally. Hind tibia with 4 stout, dorsal bristles, a dense band of setae in ranks on the medial surface at the outer fourth and also ventrally but closer to the apex. There is 1 ventromedial bristle at the outer fourth; the apex has 3 lateral, 1 dorsal, and 1 ventromedial bristle at the outer fourth. Hind basitarsus as long as the next three segments. Anterior tibia with 7 stout, posteroventral bristles and 1 at the apex; anterior and posterior bristles of the tarsi long, stout and spikelike. Claws long, nearly straight, or curved a little near the tip, the hind pair flattened, the empodium about half as long as the claws.

Wings: The wings are exceptionally long and slender; all the distal portions of the second and third veins and the branches of the fourth vein are nearly parallel. The anterior branch of the third vein ends at the apex, the posterior branch ends well behind. Marginal cell comparatively narrow at margin. Fork of the fourth vein near the middle of the discal cell. The anterior crossvein is opposite the end of the second basal cell. Anal cell with a long stalk. Alula absent; ambient vein complete. Marginal fringe long, wings tinged, with the apex smoky from the presence of dark villi. Costal cell dark, the anal cell of the anal lobe is quite straight and long with a tendency to fold, as in wasps.

Abdomen: The abdomen is very long and slender, the second segment is nearly as long as the next two; these three slender, cylindrical segments are of nearly uniform width and comprise nearly two-thirds the length of the abdomen. Abdomen gradually widened beyond the fourth segment.

Frey (1937) described two species from the Orient, which he assigned to *Ammophilomima* and also assigned *Leptogaster vitiosa* Wulp here; Hsia (1949) placed one species here. As Frey only based his distinctions from *Lagynogaster* Hermann on the presence of bristles on the hind tibia and took no note of the differences in venation or condition of the prosternum, I cannot comment on the proper allocation of these species and, therefore, leave them tentatively assigned to *Ammophilomima*. I suspect the genus will prove restricted to Ethiopia.

Distribution: Ethiopian: *Ammophilomima imitatrix* Enderlein (1914).

Oriental: *Ammophilomima nubilipennis* Frey (1937); *trifida* Hsia (1949); *rufescens* Frey (1937); *triangulata* Enderlein (1914); *vitiosa* Wulp (1872).

Genus *Euscelidia* Westwood

Figures 191, 595, 1177, 1185, 2071

Euscelidia Westwood, Trans. Ent. Soc. London, vol. 5, p. 232, 1849. Type of genus: *Euscelidia rapax* Westwood, 1849, by monotypy.

Flies of medium size which resemble *Leptogaster* Meigen in general appearance. Anal cell open; upper part of intercalary vein usually 1 or 2 times as long as crossvein. The hind femur is comparatively swollen except on the basal third which is narrow. The long, swollen part of the femur is of nearly uniform thickness; this part may be entirely covered on all sides by fine, dense, nearly erect pile, or such pile may be restricted to the medial surface with the remainder of the swollen part appressed setate; a partially isolated hair flock of long, erect hairs may stand out medially at or before the middle, suggesting a relationship to *Ammophilomima* Enderlein. The hind tibia is simple, long and slender with reduced bristles, few in numbers, and the pile even more scanty. Postmetacoxal area of metasternum fully chitinized. The distinctive character of the genus is the presence of a peglike, medial bifid projection, arising from the pronotum, and visible between the paired anterior protuberances of the mesonotum. Empodium very short or wanting. Length 15 to 25 mm.

Head, lateral aspect: The face is barely visible on the upper half, more prominent below but never long. The occiput is quite thick and prominent widely over the middle portion. The upper occiput has a dense band of fine, yellowish pile, without bristles, which becomes longer and more abundant below. The proboscis is cylindrical with a narrow ridge only at the base. The palpus is of one short, robust segment with a trace of the basal segment. The antenna is slender, as long or longer than the head. The first two segments are short and beadlike; the third is elongate, slender, tapered from the middle, and with a thick style at least half as long as the segment.

Head, anterior aspect: The face below antenna is one-ninth of the head width and strongly divergent. Face micropubescent throughout. The lower, gently protuberant part of the face usually bears a dense, wide tuft or band of many, long bristles in many irregular rows. Front short and pubescent only, the ocellar protuberance moderately large, low, without pile or bristles. Vertex scarcely excavated. Anterior eye facets rather strongly enlarged centrally over a small area.

Thorax: The mesonotum is abrupt in front, strongly convex, not higher than is characteristic for species of *Leptogaster* Meigen. The mesonotum is bare and shining, strongly striate transversely with a double row of acrostical bristles or setae which are nearly flat appressed and directed posterolaterally. Some scattered dorsocentral elements are present. Humerus without pile. Upper anterior pronotum below the humerus with a strong band of rather long, fine, yellowish pile, dense and abundant. The submedial lobes of the pronotum are prominent and characteristically there is a single, rather conspicuous, somewhat oblique, medial, stout, apically blunt, cylindrical lobe or process jutting forth from the dorsal pronotum between the anterior ends of the lateral lobes. Anterior pronotum with micropubescence only. Lateral pile of mesonotum nearly erect but fine. The sides of the mesonotum, especially posteriorly, and almost the whole of the pleuron are densely brownish yellow pubescent. Bristles are present as follows: 1 short, stout, notopleural bristle; 1 somewhat longer, stout, flat appressed supraalar bristle present or absent; 1 short, stout postalar bristle. Scutellar margin with only a fringe of fine, moderately long, upturned pile; disc with fairly long pile. Prescutellar area with dense, subappressed pile somewhat longer than the remainder of the mesonotum. Pleuron without bristles. The upper half of the mesopleuron, which is unusually large and long, has dense, subappressed pile directed downward. The anterior portion of the mesonotum before the suture is twice as long as the posterior portion. The halves of the lateral metasternum meet in a chitinized plate behind the postcoxa. Prosternum not dissociated.

Legs: The hind femur is long, quite slender and spindly on the basal third, and near this point rapidly enlarging until on more than the outer half it is more than twice as wide as the basal width or height, presenting a strongly thickened or swollen appearance. No bristles are present but there is abundant, short, subappressed pile above and similar slightly longer pile ventrally. This ventral pile extends from the basal third to the outer fifth. Hind tibia as long as the femur and quite slender throughout; it is not expanded apically and has minute, scattered, appressed pile and weak, short bristles of which there are 2 ventrally near the middle and a dorsal row of 7 short, pale bristles. The subapex bears 3 rather prominent, pale bristles below. The middle femur is very much shorter, less than half as long as the hind femur. Middle tibia with 3 very fine, long, weak ventral bristles. The ventral apical bristles are long and also yellow. Anterior femur without bristles; this tibia is without bristles or at most has 1 or 2 very minute bristles. Apex with a single, very long, anterior, black bristle and a minute, posterior, pale bristle. Claws long, only slightly curved, sharp and convergent; pulvilli are absent; and there is a very minute, short, slender, empodium approximately an eighth as long as the claws.

Wings: The wings are slender, the cells narrow. The posterior or medial crossvein lies a considerable distance from the anterior fork of the fourth vein or medius. End veins of the second basal cell fused distally. Anal cell open. The wing is as wide on the basal half as on the distal half, and the alula is absent.

Abdomen: The abdomen is quite slender and quite cylindrical on the very long second, third, and fourth tergites. First tergite an eleventh as long as the second and laterally with a vertical band of stiff, bristly hairs; second tergite considerably (at least a fourth) longer than the mesonotum. Eight tergites are visible, the last quite short. Females with the ninth and tenth tergites developed as a rather flat, subtriangular plate extending beyond the eighth.

Distribution: Palaearctic: *Euscelidia bishariensis* Efflatoun (1937); *conopsoides* Pallas in Wiedemann (1818) [=*pallasii* Wiedemann (1818), *pubiceps* Loew (1871)]

Ethiopian: *Euscelidia discors* Speiser (1913); *lucida* Oldroyd (1939); *rapax* Westwood (1849).

Genus *Lagynogaster* Hermann

FIGURES 196, 596, 1181, 1182, 1189, 1190, 2063, 2065, 2069, 2072

Lagynogaster Hermann, Arch. Naturgesch., Berlin, vol. 82, p. 12, 1917. Type of genus: *Lagynogaster fuliginosa* Hermann, 1917, by original designation.

Medium size to very large flies, characterized by the quite elongate, slender, third antennal segment with very short style, the apically club-shaped abdomen, the closed and stalked anal cell, the relatively short, upper anterior, intercalary vein nearly the same length as the medial crossvein, and the flock of hairs along the inside margin at the middle of the hind femur. Separated from *Ammophilomima* Enderlein by the small, dissociated prosternum, as well as the short, upper anterior, intercalary vein. Hind tibia with only 1 dorsal bristle near the midpoint and 1 dorsal bristle at the apex in contrast to *Ammophilomima*. Some species are suggestive in appearance of species of bombyliid genus *Systropus* Wiedemann. In *Lagynogaster* the empodium, besides being immensely stout, is nearly as long as the claw. Length 15 to 25 mm.

Head, lateral aspect: The head is short, the face plane or very slightly raised ventrally and chiefly visible because of the recession of the eyes. On the upper half it is plane with the eye. The occiput is short throughout its length with a few scattered, coarse hairs ventrally over the whole medial surface and fine, slender bristles along the middle and dorsal portions. There is a group of 5 or 6 such bristles a little more stout behind each upper eye corner. The proboscis is cylindrical, its length approximately equals the length of the head; the apex is bluntly rounded and bears a few, fine hairs. There are 3 or 4 hairs on each side ventrally just before the middle. The palpus is small, composed of 1 segment but with a distinct trace of the basal segment; the end segment is broadly rounded, clavate, short, with 5 slender bristles arising in the middle of the lateral aspect. The antenna is attached at the upper fourth of the head; it is slender and moderately elongate, the first two segments are short, of equal length; the first bears 2 setae ventrally at the apex, the second bears 2 small bristles at the apex, and both with setae dorsally. The third segment is slender, widest in the middle, gently attenuate towards base and apex and nearly twice the combined length of the first two segments. It carries a distally thickened style with bristle at tip. This style is generally about two-thirds as long as the third segment.

Head, anterior aspect: The head is wide and fully as wide as the thorax, the face below the antenna is very narrow, less than a fifteenth the head width and strongly divergent below. Face densely covered with coarse, appressed pubescence, generally without pile and with about 3 pairs of moderately long, stout bristles in 1 row across the epistoma. Front small, slightly widened towards the vertex, micropubescent, without pile; the narrow vertex is moderately excavated and has vertical sides. The ocellarium is large, bears only a little pollen and is continued backward as a rounded ridge.

Thorax: The mesonotum is high, long, strongly arched or convex posteriorly but abrupt anteriorly and slightly overhangs the pronotum. The surface is thinly micropubescent and pile very scanty, consisting of fine setae laterally. Acrostical bristles or setae are differentiated and fine dorsocentral bristles or hairs occur in the middle of the anterior half of the mesonotum. These latter become longer posteriorly but never very long and they remain fine and are distributed in 2 or 3 rows on each side. Humerus for the most part polished and bare, with 4 or 5 minute setae anteriorly. The lateral complement of stout, long bristles includes 1 notopleural and 1 supraalar; on the postalar region are only 2 or 3 hairs. Margin of the scutellum with 10 or 12 setae on each side and about 15 similar setae along the base of the flattened disc. Pronotum and most of the prothorax, except the middle posterior portion, pollinose only. Beneath the anterior spiracle and posteriorly above the anterior coxa is a patch of long, stiff pile, and there is similar, shorter pile abundantly on the whole upper half of the mesopleuron and some on the posterior half of the pteropleuron. The metapleuron bears 1 or 2 medial bristles and considerable bristly pile. Metanotal callosity pollinose only. The postmetacoxal area appears to form a complete, chitinized arch with a medial seam. The whole of it is covered with pubescence. Prosternum completely fused laterally.

Legs: All the femora and tibiae elongate, especially the hind pair. The pile is rather scanty but for the most part uniformly distributed, fine, suberect, and setate. Bristles are few, but those present are for the most part stout and conspicuous. The hind femur on inner side, near middle bears a conspicuous flock of isolated, long, coarse, erect hairs. At the apex this femur bears 1 stout bristle dorsolaterally and 2 dorsomedially. This tibia carries 7 dorsal bristles and 1 still longer ventrolateral bristle at the outer fourth; the apex has 4 stout bristles and 2 much smaller elements. Middle femur with weaker bristles. There is an oblique row of 4 or 5 at the apex posteriorly, a similar row of 4 not quite so close to the apex anteriorly, this anterior row of bristles continued by 4 additional bristles extending basad along distal and anterior margin; its tibia has 1 long, stout, posterior bristle distally and a row of 5 or 6 posteroventral bristles, 1 of them long and all of them stout. Anterior femur with bristles similar to those of the middle femur, its tibia with bristles likewise similar. Tarsi with stout, long, sharp bristles on either side. Claws long, sharp, only a little curved, the pulvilli absent, the stout, bladelike empodium half as long as the claw.

Wings: The wings are long and comparatively broad, often tinged with yellowish brown. The discal cell ends in a single vein, the posterior crossvein; this is caused by the fork of the fourth vein being situated far towards the base and close to the anterior crossvein, which lies generally opposite the base of the fourth posterior cell. Anal cell closed with a long stalk; alula absent, ambient vein complete.

Abdomen: The abdomen is long, narrow, and cylindrical on the first four segments, considerably widened beginning at the base of the fifth segment. The first segment is quite short, the second segment at least 1½ times as long as the third, and the third and fourth segments nearly equal in length.

Females with eight tergites, the eighth half as long as seventh. First tergite with six pairs of long, stout bristles laterally and more slender bristles toward the middle of the segment. Pile of abdomen scanty and fine on the basal segment, becoming a little more abundant and forming fine, appressed setae on the posterior, club-shaped portion of the abdomen.

Distribution: Oriental: *Lagynogaster affinis* Frey (1937); *antennalis* Hsia (1949); *boettcheri* Frey (1937); *claripennis* Hsia (1949); *dimidiata* Hsia (1949); *fuliginosa* Hermann (1917); *inscriptus* Hermann (1917); *princeps* Osten Sacken (1882); *sauteri* Hermann (1917); *suensoni* Frey (1937); *stigmatica* Hermann (1917); *vitalisiana* Frey (1937).

Australian: *Lagynogaster destillatoria* Hermann (1917); *timorensis* Frey (1937).

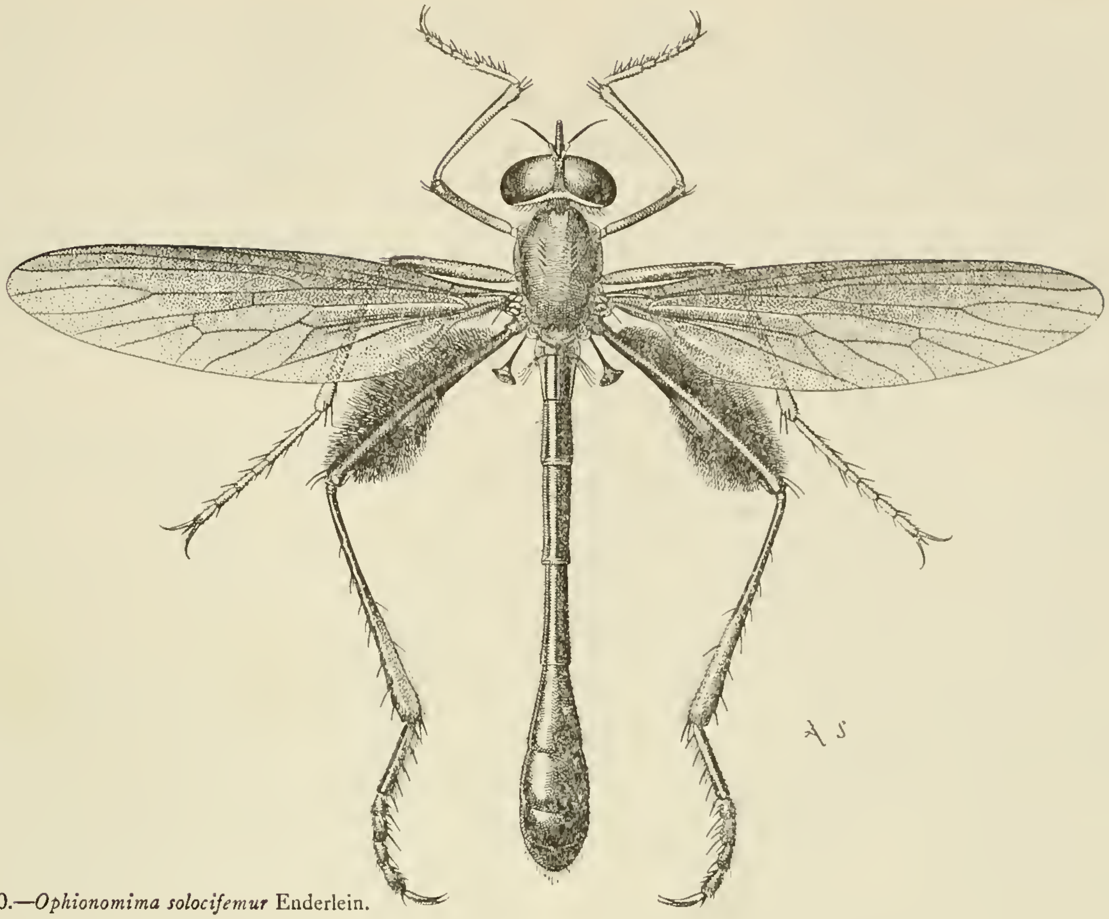
Genus *Ophionomima* Enderlein

FIGURES 192, 599, 1183A, 1191, 1593, 2061

Ophionomima Enderlein, Wiener Ent. Zeitung, vol. 33, p. 157, 1914. Type of genus: *Ophionomima solocifemur* Enderlein, 1914, by original designation.

Large flies characterized by the strongly and distally swollen hind femur which bears dense, long, dorsal, ventral and shorter medial and lateral brushes of pile. Pile and bristles greatly reduced, the anal cell with a long stalk, the end veins of the second basal cell are fused for a considerable distance; and the postmetacoxal area and ventral metasternum are membranous. Length 25 mm.

Head, lateral aspect: Only a very small, low, ventral, more or less triangular protuberance shows at the region of the epistoma; the remainder is plane with the eye. The eye is prominent and long, strongly convex anteriorly and gently convex behind. The occiput in profile is scarcely visible, the pile scanty, fine and bristly on the lower half, with slightly better developed bristly hairs dorsally. Proboscis prominent and rather long but subcylindrical and tapered dorsoapically to a bluntly rounded point; the dorsomedial ridge is moderately developed in the middle and closer to the base. Apex with a few short, stiff hairs. Palpus of a single, short, cylindrical segment which bears a few apical bristles. Antenna attached at the upper third of the head, elongate and slender; the first two segments are quite short, of nearly equal length. The third segment is gradually and slightly tapered from the base to the apex, which is rather narrow; style excluded, it is not quite twice as long as the combined length of the first two; at its apex it bears a stout style, half



Text-Figure 20.—*Ophionomima solocifemur* Enderlein.

as long as the third and attenuate at apex. First segment with 2 or 3 minute setae ventrally and dorsally, the second with 2 or 3 moderately long, quite stout setae or short bristles ventrally and dorsally at the apex.

Head, anterior aspect: The face below the antenna is a tenth the head width and divergent below to a sixth of head width across the epistoma and to a third at the base of the proboscis. The proboscis is directed horizontally forward or upward. The head is not extended below the eyes; the eyes are rather lower than the cheeks; subepistomal area small, concave and oblique and bare. The face is micropubescent with a row of 3 or 4 fine, bristly hairs across the face above the margin of the epistoma. Pile absent. Front short, narrow, pubescent without pile or bristles, vertex not excavated except posterior to the ocelli where there is a very deep pocket with vertical sides. The dorsal posteromedial margin of the eyes is strongly rounded and convex. Ocellarium low, without pile or bristles. Anterior eye facets strongly enlarged.

Thorax: The thorax is densely fine, short, appressed pubescent on the pleuron and the sides of the mesonotum and posteriorly on the mesonotum. The mesonotum is rather abrupt, but convex anteriorly, only a little more strongly sloping posteriorly. Pile of the mesonotum very nearly reduced to none; there are 1 or 2 fine hairs along the lateral portions of the suture, a few scattered, minute, acrostical elements anteriorly, and anteriorly a few, fine, dorsocentral elements which on the posterior half of the mesonotum become a little longer and stouter and form an irregular multiple row on either side opposite postalar area. Humerus with a few, short hairs anteriorly. The following complement of very long and exceptionally stout bristles is present: 1 notopleural, 1 postsupraalar, but no postalar or scutellar bristles; both these latter areas have some quite short, stiff, marginal pile. Scutellum flattened with nearly rectangular rim, the surface pubescent, the basal crease shallow medially, otherwise without pile. Propleuron with a few scattered hairs ventrally, the anterior sternopleuron with 5 or 6 long, slender, bristly hairs, the pleuron otherwise pubescent only except on the metapleuron where there are a few moderately long, stiff hairs. Lateral slopes of the metanotum pubescent only, lateral metasternum quite elongate, extended backward and upward with its ventral margin somewhat rolled but leaving the medial third of the ventral aspect and the ventral metasternum as well as the postmetacoxal area membranous and apilose. Tegula with 1 or 2 setae.

Legs: Hind femur greatly elongate, spindly on the basal third, moderately dilated distally, the middle and anterior femora slender. Pile on the femora and tibiae very scanty and greatly reduced in quantity except on the hind pair, where there is a long, very dense brush of erect or semierect pile which extends dorsally from near the base to the apex. Laterally and ventrally this pile is confined to the distal half; there is dense but much shorter pile medially on the distal half. On the hind femur are present 1 pair of stout, short apical dorsolateral bristles, 1 similar pair of dorsomedial, with a similar apical bristle between. Hind tibia very long, slender basally, gradually but strongly dilated distally, fully as long as the hind femur. This tibia bears sharp, stout, subtuberculate, somewhat oblique bristles: 7 dorsal bristles which are slightly dorsomedial in position, 2 dorsolateral over the middle portion, and 2 ventrolateral bristles at the middle and outer third. Ventral brush of setae is developed only at the apex, though there is some pile which becomes abundant in the middle. The medial brush of setae begins just beyond the middle; apex of tibia with 1 medial and 3 ventral bristles. Middle femur with 2 bristles posteroapically. Its tibia is almost without pile; on it are a few minute hairs ventrally, fewer above, 1 or 2 posteroventral bristles near the apex, and a short ventral, distal brush of setae. The apical, ventral, spinous bristles are well developed and slightly subapical in attachment; 5 are present.

Anterior femur with 2 or 3 short bristles anterodorsally at the apex, its tibia similar to middle tibia in having an anterior brush of setae; on distal half this tibia has 2 or 3 short, posteroventral bristles, and has 1 lateral, 1 anterior, and 1 ventral apical bristle. All tarsi slender, especially the basitarsus, which is rather long. Anterior basitarsus as long as the succeeding three segments. Claws sharp, stout basally, gently curved from the base. Pulvilli absent but the empodium stout, bladelike and a little less than half as long as the claw.

Wings: The wings are elongate and slender, not quite as long as the abdomen. The color is rather dark in the type of genus. Marginal cell open by scarcely more than its maximum width; second submarginal cell slightly narrowed on the wing margin; the anterior branch of the third vein ends distinctly behind the apex of the wing; apex of first posterior cell a little widened; fourth posterior cell slightly narrowed; anal cell closed with a long stalk; second basal cell ends on two veins with a long fusion distally. The anterior crossvein enters the discal cell in the middle. Alula absent, its margin fringed. Ambient vein complete.

Abdomen: The abdomen is elongate, slightly arched, with a tendency to be thrust slightly upward at the base; the posterior segments are strongly compressed laterally; the first segment is quite short, the second unusually elongate; the third and fourth segments are of nearly equal length and the second and third segments are at least subcylindrical. In the male and female eight segments are present and the eighth is four-fifths as long as the seventh. Pile of the abdomen fine, short, scanty, more or less appressed distally but suberect basally and absent on the basal two-fifths of the second segment. Sides of the first segment with a single, vertical row of 10 moderately long, slender, bristly hairs. Male terminalia very short, extended for a short distance dorsally. Female terminalia also extremely short and barely extended beyond the edge of the eighth tergite.

Distribution: Oriental: *Ophionomima solocifemur* Enderlein (1914).

Genus *Lasiocnemus* Loew

FIGURES 211, 597, 1193, 1202, 1588, 2039, 2043, 2060, 2066, 2068, 2070

Lasiocnemus Loew, Bemerkungen über die Familie Asiliden, p. 2, 1851. Type of genus: *Lasiocnemus obscuripennis* Loew, 1851, by monotypy.

Medium size flies and occasionally large. They are characterized by the rather dense, fine pile of the thorax, the strongly swollen hind femur and tibia, with their dense fringes of long, coarse pile. Anal cell closed and stalked; the discal cell ends in one vein. The wings are generally smoky blackish and often with a pattern of paler spots. Length 14 to 20 mm.

Head, lateral aspect: The head is of medium length. The face is plane with the eye over most of its length and appears as a tiny, short elevation below at the epistoma. The occiput is prominent, especially medially but low and short along the eye margin. It bears long, coarse, rather abundant pile over nearly the whole surface except along the eye margin, with bristles absent. The proboscis is short and quite robust, gradually narrowed to a blunt point apically. Along its base below it bears a row of 5 or 6 fine, bristly hairs. Palpus with a short, robust, barrel-shaped segment and a distinct trace of a fused basal segment. It bears laterally a few bristly hairs. The antenna is attached at the upper fifth of the head; the first two segments are quite short and beadlike with stiff, long setae below and fine shorter setae above.

Head, anterior aspect: The head is about 1⅔ times wider than high. The face below the antenna is extremely narrow and less than a fifteenth the head width, becoming strongly divergent below. It is covered with dense, appressed micropubescence with pile absent and a single row of comparatively slender, moderately long bristles along the epistomal margin. This row generally contains 10 pairs. The lateral and lower elements are shorter and fine. Front small, the sides expanded above, the surface micropubescent, without pile. Vertex but little excavated, the ocellarium fills most of the space between the eyes and has vertical sides. It is generally pollinose only.

Thorax: The mesonotum is of only moderate height, long, barely convex across the top, steeply arched posteriorly, abrupt anteriorly, with a vertical front. It is coarsely pubescent laterally and widely shining over the middle portion. It bears abundant, fine, mostly erect pile with a band of feebly differentiated acrostical pile. No dorsocentral elements are differentiated. Anteriorly the medial portion of the mesonotum is a little compressed laterally. There are no stout bristles on the sides of the mesonotum. Above the wing are 2 or 3 bristly hairs intermixed with coarse pile. Scutellum flat, with coarse, bristly pile along the margin and some on the disc. Pleuron densely pollinose over the upper half of the mesopleuron, the propleuron, and lower pteropleuron. The wings arise unusually far back on the thorax and all the legs attached quite far forward. The metasternum is pilose posteriorly and laterally, the postmetacoxal area is heavily chitinized, with a medial seam formed by a medial extension of the lateral chitin. The prosternum is fused laterally.

Legs: All of the femora tend to be a little dilated or swollen distally, the middle pair more than the anterior pair. The hind femur, which together with its tibia are much longer, are conspicuously swollen distally. This tibia is likewise greatly swollen, widest in the middle and narrowed toward either end. Bristles are absent except at the apex of the tibia. The hind femur and its tibia bear a dense, conspicuous fringe of rather long, erect, coarse pile on all sides, but the pile of the medial surface is more or less appressed; at the apex ventrally are 3 stout bristles. Only the first three hind tarsal segments bear bristles and these are stout. On the next two segments they are replaced by minute but very stout spines curled against the segment. The tarsal segments of the first four legs are similarly constructed. Anterior and middle femora and their tibiae with similar fringes of pile, less dense, shorter and therefore less conspicuous. The claws are long, slightly curved, sharp, apposed and the stout empodium is nearly as long as the claw.

Wings: The wings are long and rather slender, tinged with smoky brown, often with lighter spots and sometimes a violet reflection. The discal cell is closed with one vein, the medial crossvein, the fork of the fourth vein being far towards the base and the rectangular anterior crossvein opposite the base of the fourth posterior cell. Anal cell closed with a long stalk. Alula absent, the ambient vein complete.

Abdomen: The abdomen is elongate, longer than the wing, clavate or club-shaped distally and beginning to widen at the base of the third segment. The second and third segments are rather elongate and cylindrical. First segment without bristles, but only rather fine, erect, bristly pile which is not very long. The sides of the second segment on the basal half have a rather abundant fringe or patch of erect, long, stiff hairs. Remainder of the abdominal pile scanty, fine, subappressed and setate. The sternites with similar, slightly longer pile. Females with eight tergites, the eighth tergite about a third as long as the seventh.

Distribution: Ethiopian: *Lasiocnemus affinis* Hermann (1926); *albipila* Hermann (1926); *anthracinus* Janssens (1952); *fascipennis* Engel and Cuthbertson (1939); *griseicinctipes* Speiser (1913); *hermanni* Janssens (1952); *hyalipennis* Janssens (1952); *lugens* Loew (1858); *obscuripennis* Loew (1851); *pilipes* Curran (1927); *violacea* Hermann (1926).

Genus *Systellogaster* Hermann

FIGURES 206A, 602, 1180, 1188, 2042, 2052, 2059

Systellogaster Hermann, Verh. zool.-bot. Ges. Wien, vol. 74–75, p. 149, 1926. Type of genus: *Euscelidia fascipennis* Schiner, 1867, by original designation.

Medium size flies with clavate, cylindroid abdomen, the hind femur and tibia gently dilated distally and with a moderately long brush of pile on the femur. From *Lasiocnemis* Loew it differs by the short empodium which, though stout, is only half as long as the claws; also by the short pilose mesonotum; and the gradual dilation of the hind tibia, which is comparatively slightly swollen. The epistoma is concave and there is no trace of the basal segment of the palpus, or rather the remains of the basal segment of the palpus is completely fused. Finally, the anal cell is widely open and the discal cell ends normally; the wing is often fasciate. Length 12 mm.

Head, lateral aspect: The eye is strongly convex anteriorly and nearly plane for the greater middle part of the posterior profile, but strongly convex below, somewhat less convex dorsally. The occiput is thick but chiefly developed medially; it gradually slopes down to the eye margin. Pile of occiput only moderately abundant, but rather long, the submarginal elements stiff and bristly; true bristles are absent. The proboscis is robust and directed horizontally forward; it is slightly longer than the head but projects considerably beyond the face. The apex is bluntly rounded and the whole proboscis rather stout and cylindrical without dorsal ridge; the apex bears a few, short, stiff hairs and a lateral row of slightly longer, stiff hairs on either side just before the middle of the proboscis. Palpus clearly of one segment, the remains of the basal segment completely fused, especially medially, and the lateral surface membranous. The palpus is comparatively small, robust, cylindrical and obtuse, bearing close to the apex 3 or 4 fine, stiff hairs on the dorsolateral aspect and with an additional bristly hair arising laterally near the base and 1 or 2 similar hairs arising from the vestige of the basal segment. The antenna is attached at the upper sixth of the head and moderately long; the first two segments are short, the first shorter than the second, the second beadlike and wider than the third. The third segment is moderately slender, attenuate apically, 1½ times as long as the combined length of the first two and bears a slender style slightly longer than itself. This style is slightly dilated apically but not compressed and bears an elongate, apical spine. First segment below with 2 or 3 short setae, the third ventrally with 5 rather long, stout setae and 1 or 2 short hairs dorsally.

Head, anterior aspect: The head is wide and broad ventrally with the dorsal aspect arched and compressed so that it presents the appearance of being flared and widened from the vertex downward. The eye extends well below the cheeks. The face below the antenna is a sixteenth the head width and strongly divergent at epistoma, still more divergent at the bottom of the eyes. Subepistomal area large, slightly convex laterally with medial third depressed; this area concave, with a narrow, medial ridge; the whole strongly oblique. The face is pubescent, apilose, with 2 pairs of long, slender, slightly curved bristles directed forward and reaching the end of the proboscis. Front short, pubescent with a little short pile laterally. The vertex is narrow, slightly wider than the upper face, moderately excavated; its sides are nearly vertical. The ocellarium is high, with vertical sides, the anterior ocellus quite wide and more or less twinned; the whole is without pile or bristles. Central eye facets greatly enlarged.

Thorax: The thorax everywhere densely appressed micropubescent. The mesonotum is strongly convex anteriorly and distinctly overhangs the pronotum. Pile of mesonotum scanty, fine, suberect, and bristly. Acrostical elements appear to be absent; however, anteriorly is a band of short, inconspicuous, dorsocentral, bristly hairs or setae which become somewhat more abundant and slightly longer posteriorly. Anterior margin of the humerus with 4 or 5 long, stiff hairs. The following bristles are present: 1 long, moderately stout notopleural; 2 supraalar in a vertical row, the dorsal element longer and stouter; 2 short postalar with 6 or 7 additional, shorter, bristly hairs; and 10 pairs of slender, quite weak, scutellar bristles. Scutellar disc flattened, pubescent with 2 or 3 bristly hairs on either side, the basal crease deep. Propleuron without pile, or bristles. Anterior sternopleuron with a tuft of long, bristly hairs; the upper margin of the mesopleuron has similar hairs; pteropleuron and hypopleuron apilose; the metapleuron has a wide band of long, rather numerous bristly hairs or very slender bristles. Lateral slopes of the metanotum pubescent only. The metanotum is short and vertical. Lateral and ventral metasternum pubescent only. The postmetacoxal area is certainly membranous, as it is wrinkled. The whole metasternum is densely micropubescent; its lateral margins have their limits clearly defined both anteriorly and throughout. Tegula pubescent only; squamal fringe minute and short.

Legs: The femora, tibiae, and the basitarsi are all comparatively elongate; the hind femur is gradually and slightly dilated distally until it is 2¼ times the basal thickness. This tibia is also gradually dilated from the base until it is not quite twice the thickness of the basal hinge and only a little thicker distally than their basal fifth. The dorsal surface of the hind femur is covered throughout with a dense brush of extremely fine, erect, rather long, brownish pile. The lateral and ventral surfaces are covered with equally long, slightly oblique, fine, golden pile which is a little shorter laterally. The immediate apex bears 4 slender, black bristles; 2 of these are lateral in position and 2 form a dorsomedial row. Tibia as long as femur, slightly more narrow toward the base, the dense, golden, oblique pile below is short; there is more scattered, golden pile above. This tibia bears 2 moderately long, yellowish bristles ventrolaterally just beyond the middle. The apex has 4 stout, black bristles, 1 dorsal, 1 lateral, 1 ventral, 1 medial. The hind basitarsus below has 8 rather long, stiff, black bristles with 5 additional bristles at the apex and a few scattered, appressed, ventral, yellow hairs. Midfemur three-fourths as long as hind femur with moderately long, bristly pile anteriorly; its apex bears 7 or 8 long, fine, black, bristly hairs dorsally and posterodorsally. Midtibia with a posterior row of 7 or 8 fine, long, slender, yellow bristles.

Anterior femur shorter than the other femora, also slightly thickened distally with 3 minute bristles at the dorsal apex. Anteriorly near the apex there is a tuft of 12 or 15 rather long, yellow hairs, including 2 or 3 weak bristles; the dorsal surface has a band of short, fine, dark pile. Tibia with long, oblique, golden pile anteriorly and with 3 or 4 short, brown bristles posteriorly near the apex. Ventral apex with 6 rather long, stout, black bristles and 1 or 2 shorter bristles above on each side anteriorly and posteriorly. Basitarsus with several stout, black bristles; the medial row is relatively short, the anterior and posterior area with longer bristles which are especially long anteriorly on the first 4 segments. Claws long, rather sharp but gently curved throughout their length and not strongly bent at apex. Pulvilli absent. Empodium very stout, laterally compressed and half as long as claw.

Wings: The marginal cell widely open. All posterior cells and the anal cell widely open. The second basal cell ends with only 2 veins, the angle acute. The vein at the upper end of the third posterior cell is rectangular and nearly as long as the oblique vein at the upper end of the second posterior cell. Wings often diffusely banded with brown. Ambient vein complete; alula absent; the posterior basal margin of the wing is fringed with rather long pile.

Abdomen: The abdomen is subcylindrical; gradually and distinctly widened so that the fifth to seventh tergites are about 1½ times as wide as the basal tergites. There are eight tergites visible in female. Sides of the first tergite have a row of numerous, stiff, black hairs; sides of second tergite laterally with many fine, erect hairs; remaining tergite only with short pile. First sternite distinct, pubescent only. Remaining sternites with a few scattered, bristly hairs posteriorly. Basal two-thirds of the second sternite with pubescence only. Female terminalia extremely short, recessed and inconspicuous. A small liplike portion extends beyond the eighth tergite.

Distribution: Neotropical: *Systellogaster aurantiaca* Hermann (1926); *calceolatus* Bigot (1878); *fascipennis* Schiner (1867); *breviventris* Rondani (1848).

Genus *Acronyches* Williston

FIGURES 190, 601, 1178, 1186, 2038, 2062, 2067

Acronyches Williston, Manual . . . North American Diptera, ed. 3, p. 388, fig. 163, full figure and name, 1908. Type of genus: *Acronyches willistoni* Hermann, 1921. Description and type designation by Hermann, 1921.

Flies of medium size and readily distinguished by the ventrally wide and triangular face with the strongly convergent and narrowed front and vertex. Palpus with 2 segments. Pulvilli and empodium absent. Length 20 mm.

Head, lateral aspect: The head is moderately long and strongly convex anteriorly; it is nearly plane through the posterior part of the middle and slightly recessive above. The lower posterior angle of the eye is recessive but broadly rounded. The face is moderately produced from the middle to the base of palpus but is gently receding and equally long in the middle and below. The upper half of the face recedes down to the eye margin at the base of the antenna. The occiput in profile is extremely narrow, obliterated below; the lower face and cheeks are excavated so that the eye descends below the base of the proboscis as far as the occiput is concerned. The upper occiput has 3 or 4 short, pale bristles placed quite submarginally. The lower face and proboscis are on the same level as the bottom of the eye. The proboscis is directed straight forward, cylindrical at the base, somewhat narrowed with a distinct but low, thin dorsomedial ridge. The apex is rounded and short pilose. Palpus short, of two segments, the basal segment quite short, the second longer, club-shaped, pointed at apex and held at a right angle. The second segment has 6 or 7 long hairs, the basal segment with 3 long hairs. Antenna long, slender, the first two segments of equal length; the third 3 times as long as the first two and attenuate apically; it has a short, thick style, and very minute, distinct, apical spine.

Head, anterior aspect: The face and front together form almost an equilateral triangle similar to *Plesiomma* Macquart. The middle of the face bears a transverse row of bristles containing 2 long, adjacent, closely set, pale bristles held horizontally forward, nearly as long as the proboscis, and 2 pairs of other weak bristles placed laterally. Sides of face below with a deep, lateral crease. The vertex is extremely narrow, not excavated, the eyes almost touching behind the ocelli.

Thorax: The mesonotum is strongly sloping behind, everywhere pollinose. It bears a single row of short, fine, acrostical elements and is bare on either side followed by submedial stripe of short pile. Humerus with 2 or 3 hairs. Thorax with moderately long, strong, pale bristles as follows: 1 notopleural, 1 postalar, 1 supraalar, but no scutellar. The scutellum is flattened, not pilose. Mesopleuron without pile or bristles. Metapleuron with only fine pile which covers an oval patch posterodorsally; it is very slightly convex. Pleuron otherwise without pile but everywhere golden pollinose. The cervical sclerite is covered with numerous, very long, extremely delicate, silky hairs. Upper and lower propleuron fused. Slopes of the metanotum without pile. Slopes of the metasternum also without pile; postmetacoxal area membranous.

Legs: The hind femur is elongate and distinctly thickened distally where it is twice as wide as at the base; this femur is densely covered with appressed, short, setate pile except ventrally where there are only a few minute hairs. Laterally there are short, stout, pale bristles, 1 near the apex subdorsally, 1 behind it at the apical fourth, and 1 very short bristle near the base. There is also 1 at the apex dorsomedially, 1 on the medial surface mediodorsally, and also a downwardly directed patch of rather long, dense, coarse, red pile. Hind tibia slightly longer than the femur with scanty, appressed pile; the bristles are all short and consist of 3 dorsolateral, 4 ventrolateral and at the apex a dorsal pair and 1 medial, 2 ventral, and 1 lateral bristle, all weak and short. Middle femur short, appressed pilose dorsally and anteriorly; its tibia with 3 dorsal, 7 long, appressed postventral bristles and the subapex bears 2 moderately strong ventral and posteroventral and 1 anteroventral bristle. The anterior femur is similar to the middle femur. Anterior tibia with 7 dorsal bristles; posteroventral margin with 10 rather short bristles; apex with 1 ventral, 1 anterior, and 1 posterior bristle, all long and strong. No apical spine present. Posterior basitarsus slender, longer than the next three segments, with the ventral surface covered with only short, stout, spinous bristles, few in number and with a very little pile is confined to a narrow row on the medial margin. Middle and anterior tarsi similar and with still less pile. Claws quite long, only slightly curved toward the outer third, sharp, convergent, without pulvilli and without empodium.

Wings: The marginal cell is widely open, the fourth posterior cell narrowed to half the width or less. Anterior margin of wing often dark or smoky. The anal cell is closed in the margin. The two outer end veins of the discal cell are of equal length. The wing is peculiar in that the second basal cell is exceptionally long; the two end veins of the second basal cell fuse briefly in the middle of the posterior margin of the discal cell. Ambient vein complete but alula reduced to a minute linear strip.

Abdomen: The abdomen is distinctly petiolate or clavate and as long as the wings. The second tergite is elongate and subcylindrical; the abdomen expands from the base of the third segment. The fifth tergite is more than twice as wide as the second. First tergite extremely short, bearing a vertical row of 3 weak, reddish bristles. Sides of second tergite with long, delicate, erect pile. Remaining tergites with short, scanty, appressed pile. Eight tergites are present. Female terminalia minute and short, without spines. No males seen.

Distribution: Neotropical: *Acronyches fenestratulus* Hermann (1921); *imitator* Hermann (1921); *willistoni* Hermann (1921).

Megonyx, new genus

Figure 204

Type of genus: *Megonyx giganteus*, new species.

Extremely large flies, related to *Acronyches* Hermann, and distinguished by the comparatively wide vertex, the greatly reduced height of the face, widely covered with slender bristles and bristly pile, and the conspicuous, bristly, shaggy fringes above and below on the outer half of the strongly swollen hind femur. Length 29 mm. including antenna, and wing spread of over 40 mm.

Head, lateral aspect: The head is comparatively long, with the face of greatly reduced height but moderately prominent. The height of the face is at most only a fourth the distance from the antenna to the bottom of the subepistoma above the proboscis, and while the face is plane in profile it is produced forward more extensively below, so that at the margin of the epistoma it presents a moderately sharp angle with the epistoma. The whole of the subepistoma is prominently produced in profile, and entirely covered with the same appressed, greyish white micropubescence, which is found over the whole surface of the face, cheeks, and front. Occiput only moderately prominent over the middle part of the head, recessive and reduced at the bottom of the head and also at the vertex. Only at the lower medial corner is there a little pile at the bottom of the occiput. Adjacent to it are moderately numerous, slender, black, bristly hairs, which continue in 2 or 3 irregular rows upward on the occiput, changing to a single row near the vertex. A few of the dorsal elements are comparatively stout. Proboscis robust, bluntly rounded, thrust obliquely forward and with a distinct, medial ridge above, and with an oblique, lateral furrow or crease some distance from the apex; at the bottom of which furrow there is a pair of slender, moderately long, stout, black bristles. At the apex are only a few, short, stiff hairs; pile otherwise absent.

Palpus large, apparently with a well developed, basal segment, the ultimate portion cylindrical, with large, oblique, apical, apilose opening, and with several slender bristles and bristly hairs. The antenna prominent and elongate, the first two segments are short; the first is slightly longer than the second and it bears 5 slender, long, bristly setae below. The second segment bears 4 or 5 similar setae at the apex above and below, and all setae are directed straight forward. Third segment, with microsegment included, is nearly 4 times the combined length of the first two. It is strongly compressed laterally, spindle-shaped in profile, distinctly attenuate from the middle in both directions, and the middle width is twice the basal width. The style is not as long as the second antennal segment but is sharp at the apex.

Head, anterior aspect: The head is approximately 1½ times wider than high. The vertex, while narrow, is considerably (at least 3 times) wider than in *Acronyches* Hermann, and the front widens below, though only moderately. Beginning below the antenna the face rapidly widens below and the extremely high, prominent subepistoma continues to expand and diverge at the same rate, so that at the bottom of the eyes the separation is quite extensive and the eyes extend below the base of the proboscis. The whole face is loosely covered with slender, black bristles of moderate length, except for a narrow space along the eye margin and in the middle on the lower part of the face are 2 close-set rows, one above the other containing long, comparatively stout, black bristles. The long, black bristles number 10, the short, slender bristles are about 12 in number on each side, among which are 1 or 2 white hairs. Front with fine, grey white pollen or micropubescence and no pile, except for 2 or 3 minute, very fine hairs in front of the ocelli. Ocellarium quite low, without pile or bristles and the vertex very little excavated.

Thorax: The mesonotum only moderately high, rather long and opaque pollinose, in the type of genus the medial fourth is opaque black, the remaining lateral portion light, opaque grey. Pile of mesonotum very scanty, fine, erect and setate, with a single row of black, acrostical setae widely separated from adjacent pile. Bristles of mesonotum few but long and stout. There are 2 on the notopleuron, 1 or 2 on the postalar callosity; scutellum flat, grey pollinose, the thick angulate margin with some 10 pairs of fine, short, black setae. Prosternum small and strongly dissociated, postmetacoxal area of the metasternum wide and membranous.

Legs: The hind femur and tibia quite elongate, the femur strongly swollen on the outer half and with dense pile on all surfaces beginning at or just before the middle. This dense pile dorsally and ventrally is long, shaggy, tufted and appressed, and is also long and conspicuous medially but quite short laterally. The hind tibia gradually dilated from the base to the apex, the pile is fine and scanty except on the medial and ventral sufaces where it is dense and semierect. Bristles absent on the hind tibia except at the apex, and are confined to 4 ventral, stout, black bristles. Middle tibia with 9 quite stout, rather short, strongly appressed, posteroventral bristles and moderately abundant setae both ventrally and anteriorly, fewer above and behind. Anterior legs missing. The claws are quite stout and long, only slightly curved and slightly more curved at apex and apposed. Empodium absent, also pulvilli.

Wings: The wings are very dark brownish black with a strong purplish reflection, a little paler on the posterior margin and in the type of genus with 1 or 2 small, hyaline spots. The medial crossvein of about the same length as the upper part of the anterior intercalary vein. Both make the same angle with the second branch of the medius. The rectangular, anterior crossvein enters the broad, discal cell at or barely beyond the middle. The posterior crossvein is wanting but the fourth posterior cell is short and the basal vein on the posterior side of the discal cell is almost as long as the distal vein on the posterior side of this cell. Fourth posterior cell strongly narrowed at the margin, anal cell closed with a short stalk.

Abdomen: The abdomen is elongate and slender and only slightly and gradually widened apically. There is some coarse, long, pile on the middle of the sides of the second tergite and some on the base of the tergite except in the middle. The first tergite has laterally a close-set linear row of 7 or 8 rather stout, black bristles and some additional, more slender bristles.

Distribution: Neotropical: *Megonyx giganteus*, new species.

Megonyx giganteus, new species

Length 29 mm. Female. Head: The head is black in ground color with a pale, whitish, clay brown, small spot on the outside of the lower edge of the subepistoma and the medial ridge of the subepistoma of the same color. The black of the head is densely covered by pale, opaque grey pollen and micropubescence. Palpus dark brown, a little lighter towards the base, the lateral hairs whitish, the dorsal and the dorsolateral bristles or hairs black and 1 ventral black hair. Pile and bristles of face black with 4 white hairs on each side. Antenna black with only the extreme base of the third segment minutely light brown.

Thorax: The thorax is everywhere dull, opaque black, except for the upper half of the propleuron, which is light bluish grey or slate colored pollinose, relieved by a small, black spot. Approximately the lateral three-eighths of the mesonotum also opaque, pale, slate grey pollinose, and this lateral pale stripe has a small, medial, anteriorly rounded extension adjacent to the humerus, and not reaching the anterior margin. Anteriorly the mesonotum is abruptly vertical, although only moderately high. The humerus has dark, brownish black pollen. Pleuron opaque black with a small, horizontal, long, ovoid spot of pale grey pollen on the upper part of the sternopleuron. Anteriorly and posteriorly to this grey spot there is a diffuse spot of brown pollen. Metapleuron with a horizontal row of some 15 rather short, slender, black bristles or long, black setae, placed irregularly. Scutellum pale slate grey pollinose. All thoracic pile and bristles black.

Legs: The hind femur is shining black on the outer three-fourths, including the apex; the basal part dark, reddish brown. Hind tibia with the basal two-fifths black and the apical tenth black, the intermediate portion quite pale brownish yellow or clay colored and with mostly pile of the same color. The black portion of the tibia and the whole of the femur with black pile. Middle femur black, becoming reddish only ventrally and basally. Its dense, appressed setae are black and with a few basal, posterior, whitish hairs. Middle tibia brownish black with an obscure, linear, dorsal and basal, yellowish white streak and a larger, similarly colored stripe on the outer two-fifths but confined to the dorsal half of the posterior surface and not reaching the apex. The setae almost entirely black but with some intermixed white elements posteriorly. Hind tarsi black, the apical segment with a yellowish brown spot in the middle dorsally. Middle tarsi black with the basal segment extensively yellowish white posteriorly nearly to the apex and less extensively pale anteriorly. Claws wholly black and tarsal pile almost wholly black.

Wings: The wings are strongly tinged with brownish black with purple reflections but obscurely and slightly paler along the posterior margins. All veins quite black. There is an elongate, small but conspicuous, subrhomboid spot which is hyaline in the second basal cell and situated just before the origin of the discal cell, and a second smaller, similar hyaline spot obtusely triangular below the base of the discal cell in the second basal cell. Basal fork of the fourth vein with a small, pale spot.

Abdomen: The abdomen is black, the basal two-fifths of the second tergite is pale grey pollinose and the posterolateral portion of this tergite is also pale grey pollinose. The third, fourth and fifth tergites similar, the basal band of pollen less extensive and the posterior spots also becoming smaller. Pile of abdomen moderately abundant, appressed and black and setate.

Type: Female, Manaus, Amazonas, Brazil, October 1945, collected by W. Praetorius. Donated to the American Museum of Natural History by Frank Johnson.

Genus *Schildia* Aldrich

FIGURES 201, 588, 1192, 1201

Schildia Aldrich, Proc. U.S. Nat. Mus., vol. 62, p. 4, 1923. Type of genus: *Schildia microthorax* Aldrich, 1923, by original designation.

Schildia has 1 subgenus, *Shannomyioleptus* Carrera.

Small flies of remarkably slender, elongate abdomen, elongate and slender hind legs and with the wings characterized by the presence of long, stout setae on the last branch of the radius and the first two branches of the medius. The veins of the radial sector at the apex tend to be compressed together ending within a short distance of one another near the apex. *Shannomyioleptus* Carrera is a subgenus of *Schildia*, differing in the slightly longer antenna and the slightly more extensive distribution of the neural setae. Length 6 mm.

Head, lateral aspect: The head is long, strongly convex both on the anterior and posterior half, the face plane with the eye, the occiput rather prominent behind. The proboscis is short, cylindrical, extended forward, the apex bluntly rounded. Palpus of one segment, extremely minute and short. The antenna is attached at the upper fifth or sixth of the head and rather short, the first two segments are subequal. The third segment is slightly longer than the first two, no wider, strongly attenuate at the base; it is barely convex dorsally, but strongly convex below and the blunt apex carries a minute, short bristle.

Head, anterior aspect: The face is extremely narrow on the upper half, about a twentieth of the head width and strongly divergent below; the eye continues to diverge posteriorly. Anterior eye facets enlarged near the middle of the head. The front is small, narrow, pubescent, the vertex not excavated except behind the ocelli; the ocellarium is large, the posterior eye corners only a little rounded and flared. Upper occiput along the middle near the eye margin with 4 short bristles.

Thorax: The thorax is exceptionally high and short; the mesonotum anteriorly overhangs the prothorax slightly and is steeply sloping behind. There is a single, remarkably long, conspicuous, dorsocentral bristle in the middle of the presutural part of the mesonotum and a few other minute, short setae. The notopleuron and the supraalar region each have 1 long, conspicuous bristle; postalar region and the scutellum with none. In contrast to *Leptopteromyia* Williston, the long, chitinized metasternum with its medial seam is oblique instead of horizontal to the thorax. Halteres on long, slender stalks, forming conspicuous club-shaped bodies at their apices.

Legs: The hind femur and its tibia quite long and slender; the femur is a little clavate on the distal third, the latter very little thickened distally and both with conspicuous though very slender bristly hairs. This femur bears a medial row of such hairs on the distal third, on the ventrolateral margin and most of the ventromedial margin. Its tibia has 4 such rows ventrolaterally, ventromedially, dorsolaterally, and dorsomedially, each with about 15 elements. Anterior 4 legs with fewer and less conspicuous setae, but the apices of their tibiae each with 1 or 2 long, conspicuous bristles, their first two tarsal segments also with rather long bristles. First four tarsi with the posterior claw reduced and the hind tarsi with the medial claw more strongly reduced. Pulvilli absent; empodium present but very fine, short, and reduced in length.

Wings: All the veins are present in the wing; the first vein extends nearly to the wing apex and runs very close to the costa throughout its length so that the marginal cell is remarkably narrow. Apices of remaining branches of the radius are crowded rather closely together near the wing apex. The anterior branch of the third vein ends nearest the wing apex. Ventral surface of the second vein, both surfaces of both branches of the third vein and all branches of the fourth and fifth vein with long, stout, suberect setae. The alula is absent; the ambient vein is complete; the veins beyond the end of the second basal cell are fused for a short distance.

Abdomen: The abdomen is elongate and very slender, the wings not quite reaching to the end of the third segment; the first segment is extremely short, the second segment is three-fourths as long as the wing and the first three segments are subcylindrical. The pile is scanty, appressed and setate; the first segment bears a few, short bristles laterally. Male terminalia wide but short.

Distribution: Neotropical: *Schildia fragilis* Carrera (1944); *microthorax* Aldrich (1923).

Subgenus *Shannomyioleptus* Carrera

FIGURES 205, 589, 1194, 1203, 1584

Shannomyioleptus Carrera, Papéis Avulsos Dep. Zool., São Paulo, vol 4, p. 87, 1944. Type of subgenus: *Shannomyioleptus fragilis* Carrera, 1944, by original designation.

Small, extremely delicate flies with threadlike abdomen, very much like *Schildia* Aldrich. I find the only differences to be a moderately longer third antennal segment, to which is attached a small microsegment, and the presence of 1 pair of anterior dorsocentral bristles in *Schildia* and more than 1 pair in *Shannomyioleptus*. Length 7 to 8 mm.

Head, lateral aspect: The face is plane with the eye throughout its length, the small, cylindrical proboscis extends well beyond the face, the occiput is not visible in profile and has a sublateral fringe of fine, bristly hairs with near the vertex a single, slightly longer, slightly more stout element. The palpus has one segment, is minute, short and clavate, with rounded apex. The antenna is attached at the upper fourth of the head, the first two segments subequal, with a few, fine setae above and below; the third segment is about 1½ times the combined length of the first two, attenuate toward the base, widest in the middle, a little narrowed distally, finely pubescent and bears at the apex a very short style. In *Schildia* the third segment is approximately the same length as the first two and the style is shorter.

Head, anterior aspect: The head is considerably wider than the thorax, the face below the antenna is quite narrow and about a fifteenth the head width, and divergent below. The face is pollinose, with an impressed medial line which is bare, and at the epistoma it bears 2 long, slender, curved, anteriorly directed, bristly hairs. Front small, pollinose, without pile, with a medial bare spot above the antenna; the vertex is scarcely excavated; the ocellarium is small but with vertical sides and without pile.

Thorax: The mesonotum is rather high, steeply arched posteriorly, produced bluntly forward anteriorly and overhanging the pronotum. It is polished and bare except for 2 or 3 minute, fine, erect, dorsocentral bristles and likewise anteriorly 1 or 2 still finer, shorter, acrostical hairs. Sides without bristles or hairs. Scutellum very small, flat, dully pollinose without pile, hairs or bristles. Beginning along the dorsal surface of the mesopleuron there is a diagonal band of pale pollen or micropubescence and the remainder of the pleuron is similarly covered. Pile absent except for very minute hairs on the metapleuron. The wings are attached quite far to the rear and all of the coxae lie far forward, and close together.

Legs: The legs are elongate and slender, especially the hind pair which are especially elongate. Hind femur almost threadlike except on the discal fourth which is dilated and swollen. It bears a fringe of conspicuous, fine, oblique bristles ventrolaterally containing about 18 bristles and there is a similar ventromedial row with at least 25. On the swollen portion of the hind femur are 1 or 2 rows laterally, dorsally, and medially, all of which largely disappear on the slender portion. Hind tibia nearly as long as the femur and with 2 dorsal, 1 lateral, 1 posterior, and 2 ventral rows of similar, regular, numerous, oblique, fine bristles or bristly hairs. Hind basitarsus very long and slender, at least as long as the remaining segments combined and all with similar bristly hairs to those of the tibia. First 4 femora with more scanty pile, the middle pair with a ventral fringe of 15 bristly hairs. These 4 tibia have more numerous rows of regularly spaced elements. Claws fine, sharp, barely curved, the pulvilli absent. The empodium is apparently absent and the lateral claw of both hind and middle legs shorter.

Wings: The wings are rather slender, the second vein and the anterior branch of the third vein are arched backward especially distally. The anal cell is quite widely open and the ambient vein is complete. The venation in every respect is similar to *Schildia* and all the branches of the radius and the distal branches of the medius and cubitus bear on each side a fringe of conspicuous microsetae. Halteres clublike on long, slender stalks.

Abdomen: The first segment is extremely short, the second remarkably long and cylindrical and nearly three-fourths as long as the wing. Remaining segments also slender, long and cylindrical and the end of the abdomen is a little widened and clavate.

Genus *Leptopteromyia* Williston

FIGURES 198, 586, 1197, 1206, 2040

Leptopteromyia Williston, Journ. New York Ent. Soc., vol. 15, p. 1, 1907. Type of genus: *Leptopteromyia gracilis* Williston, fig. 77 (35), figure and name, 1908. Designated by E. Hardy, 1947. Description by Carrera, 1947.

Small flies of exceptionally slender abdomen and characteristic wing venation. There are only four posterior cells. The third and fourth cells are united into one cell and the anal cell is missing. The postbasal margin of the wing is formed by the anal vein. The short, third antennal segment carries a subdorsal arista and like *Schildia* Aldrich the halteres are exceptionally long. *Leptopteromyia*, *Eurhabdus* Aldrich, *Schildia* Aldrich and subgenus *Shannomyioleptus* Carrera are all related and share the remarkable halteres. They differ in wing venation and form of antenna, which, however, has a general similarity in all 4 genera. Length 8 mm.

Head, lateral aspect: The head is long and in lateral aspect subcircular; the eye is extremely large and strongly convex, the face plane with the eye margin. The occiput is moderately developed, a little more prominent dorsally; it is broadly and strongly rounded and together with the eye is convex posterodorsally. The proboscis is small and cylindrical, extending well beyond the face, thrust obliquely forward, cylindrical, with the apex bluntly pointed. Palpus of one segment, small and short. The antenna is attached at the upper fifth of the head, small and short, the first segment is quite small, the second is larger and beadlike. The third segment is not quite so wide, is a little longer and bluntly truncate at the apex with a comparatively long, slender, dorsal, bristlelike style.

Head, anterior aspect: The face is extremely narrow on the upper half, the eyes almost touch and are strongly divergent on the lower half with the eyes diverging at the same angle on the posterior ventral portion of the occiput so that from below the cheeks appear wide. Width of upper face less than a twentieth the head width; the whole face is micropubescent, without pile, except for 2 rows of slender hairs above the epistoma, each row consisting of 1 pair. Front short, pubescent, triangular, the vertex very little excavated, the small ocellarium is set quite far apart and the eyes are strongly excavated posterolaterally and flared leaving the upper occiput greatly exposed; this posterovertical excavation is considerably greater than in the several related genera.

Thorax: The mesonotum is high and short; the anterior margin is abrupt and nearly vertical, the posterior end is also quite high and almost vertical. The scutellum and abdomen are attached well below the middle of the thorax. The middle of the mesonotum is broadly polished and shining; the sides narrowly behind the humerus and more broadly over the wings are short, appressed pubescent and almost scaled. The middle of the mesonotum has dorsocentral rows of short, scattered, nearly erect hairs. Laterally there is 1 long, slender, notopleural bristle, 1 supraalar, no postalar and no scutellar bristles; scutellar margin and disc with a few, short, scattered hairs. Mesopleuron densely, short, appressed pubescent; the upper mesopleuron bears a few, scattered hairs. The hypopleuron likewise has 1 or 2 hairs. The metasternum is greatly elongate and appears to extend as a broad, delicate, elongate, thin but chitinous arch with medial seam behind the posterior coxa. The posterior coxa is set so far forward it lies almost beneath the humerus. Prosternum not dissociated. The halteres are remarkably long.

Legs: The posterior femur and its tibia are greatly elongate, more than twice as long as the middle pair; its femur is strongly clubbed and dilated on the outer third, and the tibia narrow at base and gradually widened until at the apex it is almost as stout as the femur. The pile of the legs consists of fine, more or less appressed, stiffened hairs. Posterior femur with a ventrolateral fringe of 15 to 20 moderately long, erect, fine bristly hairs. Middle femur with a less copious ventral fringe, 2 or 3 similar, apically directed hairs at the dorsal apex. The middle tibia has an anteroventral, a very short anterior and short posterior row of fine, bristly hairs, each row containing about 15 elements. Anterior legs similar; the first two segments of the anterior and middle tarsi bear somewhat stouter, bristly hairs. Claws long, sharp, gently curved and partly apposed; the empodium is reduced to half the claw length on the first four legs, a little longer and stouter on the hind pair.

Wings: In the wings the anal area and the whole basal half of the wing more or less reduced. The first vein ends before the end of the discal cell; the anterior branch of the third vein arises rather abruptly from the third vein and the second submarginal cell is wide at the base. The anterior crossvein enters the discal cell at or before the middle. The third and fourth posterior cells have united into one, the entire anal lobe has disappeared leaving the posterior border formed by the anal vein. Ambient vein complete.

Abdomen: The abdomen is long and quite slender, especially on the second and third segments, which are cylindrical. Pile is short, scanty, subappressed and setate; the sides of the first tergite bear several moderately stout bristles. Male terminalia with well developed, elongate superior forceps hooked apically, with the point turning toward the medial plane. The gonopod is almost as long as the superior forceps. Hypandrium prominent and long, deeply sulcate, the lateral arms bear bristles.

Hermann (1926) proposed the species *Leptopteromyia willistoni* Hermann as type of genus, without, however, describing it. Williston (1908) figured a species under the name *Leptopteromyia gracilis* and this illustration validates the genus. Carrera (1947) offers a description. E. Hardy (1947) discusses the genus *Leptopteromyia* and correctly observes that it is well founded. He also points out that the type of genus is *Leptopteromyia gracilis* Williston from Brazil.

Distribution: Nearctic: *Leptopteromyia americana* E. Hardy (1947).

Neotropical: *Leptopteromyia gracilis* Williston (1908).

Genus *Eurhabdus* Aldrich

Figures 587, 1196, 1205, 2037

Eurhabdus Aldrich, Proc. U.S. Nat. Mus., vol. 62, p. 2, 1923. Type of genus: *Eurhabdus zephyreus* Aldrich, 1923, by original designation.

Strange flies in which the basal part of the wing for almost precisely half the total wing length is reduced to a remarkably slender, hairlike stalk, bearing a few, fine cilia on each side. The discal, second, third and fourth posterior cells are combined into one cell. The greatly expanded eyes meet in front for a considerable distance below the minute antennae, almost reducing the face to none and making the only holoptic genus in Asilidae. The thorax is quite small and short and not much bigger than the head. The halteres are like round, flattened discs attached by very long, slender, threadlike stalks, each longer than the middle tibia. Abdomen extraordinarily slender and elongate. Length 6½ to 12 mm.

Head, lateral aspect: The head consists mostly of the greatly enlarged eyes; the length is medium, the occiput moderately developed over the middle of the head with a few, fine, minute hairs. Face not visible in profile. The proboscis is small, extending beyond the head for a short distance, directed forward, cylindrical and tapered to a blunt point on the outer fifth. Palpus minute. The antenna is attached at the upper eighth of the head, or on nearly the same plane as the ocelli. They are extremely short and inconspicuous. Front small, the vertex scarcely excavated, the ocellarium quite low. From the dorsal view the eyes are flared and rounded outwardly, exposing a wide area of upper occiput and postvertex. The vertex is therefore strongly divergent. The anterior eye facets are greatly enlarged.

Thorax: The thorax is polished and shining with a few, scattered, miscroscopically small setae. The mesonotum is high and sloping steeply behind; it is abrupt anteriorly and slightly overhangs the pronotum. Humerus bare; the lateral complement of bristles, all fine and slender, includes 1 notopleural, 1 postsupraalar, apparently no postalars, and only 1 pair of scutellar bristles. Pleuron and the supraalar region micropubescent. Postmetacoxal area fused into a long, stout, pubescent, chitinous arch. Halteres large, their stalks extremely long and slender.

Legs: The hind femur is greatly elongate, almost as long as the very long first abdominal segment and on the apical fifth it is strongly swollen and clavate. The hind tibia is as long and as slender as the femur and a little thickened on the distal fourth. Hind tarsus but little elongate. The pile of the hind femur consists of fine, sharp, scattered, subappressed setae and a single small bristle dorsomedially at the apex. Middle anterior femur a little swollen near the apices; the middle femur has an anteroventral fringe of 10 to 12 very fine, slender bristles; the tibia has similar but fewer elements. The anterior tibia also has such fine bristles. Anterior tarsus with comparatively stout bristles anteriorly. Pulvilli absent; the claws slightly curved, sharp, partly apposed; the empodium half the claw length.

Wings: The discal, second, third, and fourth posterior cells are combined into one cell. Aldrich (1923) was mistaken in stating that the auxiliary and first longitudinal veins are absent. Actually both of these veins are present, but are so crowded together with the costa that they appear as one. Close inspection will show that these veins are present and that there is a minute space between them. The radius then, is 4-branched, with only 3 apparent branches. The discal cell is widely open to the margin and marginally flared, gradually increasing in width from the base. The fifth posterior cell is present, as well as the first posterior cell. Therefore, it may be considered that 3 posterior cells are present, the second, third, and fourth and discal forming a single cell. Seventh vein absent. Only what would constitute the anal cell is narrow and attenuate lying along the basal posterior margin; first and second basal cell complete and large. Ambient vein complete, with a long, fine fringe, the hairs of alternating length. The whole wing is rather densely villose.

Abdomen: The abdomen is exceptionally long and slender, not quite twice as long as each wing. The second segment is more than half as long as a wing, no thicker than the distal portion of the hind tibia and cylindrical. The first segment is apparently very short and more or less fused with the second. Third and fourth segments no wider than the second, their combined length about the same as the second. Female with eight tergites, the sixth and seventh are long and swollen and the abdomen as a result is clavate. The eighth segment is about a fifth as long as the seventh. Female terminalia is small and quite inconspicuous. Pile of the abdomen is short, fine and setate, rather abundant except on the second tergite where it is scanty and stout. No males were seen.

Distribution: Neotropical: *Eurhabdus zephyreus* Aldrich (1923).

An undescribed species is found in Jamaica, according to a communication from Dr. Thomas Farr.

Genus *Dolichoscius* Janssens

Figures 189, 605, 1176, 1184, 1585, 2053

Dolichoscius Janssens, Bull. Inst. Sci. Nat. Belgique, vol. 28, p. 9, 1952. Type of genus: *Dolichoscius francoisi* Janssens, 1952, by monotypy.

Flies of medium size, which like *Lasiocnemus* Loew and *Ophionomima* Enderlein have dense, conspicuous brushes of pile on part of the hind legs. In *Dolichoscius* this pile is restricted to the distal half of the hind tibia and the first tarsal segment and progressively decreasing on the remaining segments. In *Ophionomima* the conspicuous brush of pile is found on the whole dorsal surface and distal half of the lateral and ventral surfaces of the femur, not of the tibia. In *Lasiocnemus*, to which this genus is probably more closely related, the long, dense, erect pile is present on almost the whole of femora and the tibiae and also its tibia begins to be swollen at the base. Basal half of wing in *Dolichoscius* greatly and gradually narrowed. Length 13 mm.

Head, lateral aspect: The head is of moderate length, the profile convex both posteriorly and anteriorly. The occiput is swollen gradually and most extensive just above the middle. Occiput with abundant, long, fine, delicate pile. The eye is considerably narrowed dorsally. The ocellar tubercle and ocelli are visible in profile. Face quite short and visible only below as a small triangular extension. The proboscis is short but exceptionally stout and high and very little compressed; it has a short, basal and dorsal thin ridge or extension. Apex bluntly rounded and attenuate. Palpus short, of 1 segment, cylindrical, with a few short hairs and some pubescence at the apex. The antenna is attached close to the top of the head; the front is therefore quite short.

Head, anterior aspect: The epistomal margin bears a single row of long, fine, matted, stiffened hairs which are not as long as the proboscis and are broken up into 3 parts containing approximately 12 elements. Remainder of face without pile; the face is quite narrow, strongly divergent below and approximately a twelfth the width of the head across the middle. Anterior eye facets strongly enlarged. Vertex with almost no excavation; the ocellar protuberance is low with the large ocelli laterally protuberant.

Thorax: The mesonotum with a narrow band of acrostical pile anteriorly; the sides of the mesonotum bear numerous, fine, long, erect hairs. The mesonotum is rather high and convex and anteriorly abrupt. Notopleuron with fine, long pile; bristles absent except for 1 notopleural, 1 supraalar. There are no postalar and no scutellar bristles. The scutellum is quite small, short, flattened, pubescent, margined with a band of copious, rather long, fine, erect pile. The transverse suture and the wing are placed far to the rear of the thorax; nearly five-sevenths of the thorax lies anterior to the suture. Mesopleuron with a dorsal band of long, fine pile. Hypopleuron pubescent but not pilose. Metapleuron micropubescent only except for 2 fine hairs immediately in front of the halteres. Anterior mesopleuron with a long, downward turned mat of pile. Stalk of the halteres quite long.

Legs: The hind femur extremely long and slender and strongly thickened on the outer two-fifths where it is nearly three times as wide as the middle and base. The pile is rather short and appressed but suberect ventrally. There is a pair of weak bristles dorsally at the apex. Hind tibia equally long, quite slender on the basal half, but considerably thickened and expanded apically, and bearing a dense, long brush of long, black, oblique pile, which is longest dorsally and dorsolaterally but continues over the ventral dorsal surface as shorter pile. The apex bears 1 lateral and 2 very long, ventral, spinous bristles; in addition there is 1 medial apical bristle which is pale. Hind tarsus also ornamented with special pile; the dorsal pile is nearly erect, quite long on the basitarsus and progressively shorter on the remaining segments. Last tarsal segment long and cylindrical and nearly twice as long as the preceding segment. Middle femur is short, slightly arched and bears short pile and 2 weak bristles apically and posterodorsally. The posterior pile is somewhat longer especially down the middle of this femur. Middle tibia with a posteroventral row of 5 quite long, oblique, white bristles; the apex has 1 ventral, 1 anterior, 1 posterior, 1 medial bristle. Anterior femur scarcely more than two-thirds the length of the middle femur; it is very short pilose with a weak posteroapical bristle. The tibia is slender, shorter than the middle tibia, densely pilose ventrally and with a strong, white bristle anteriorly and posteriorly at the apex and quite short bristles dorsally and ventrally. First four segments of the anterior tarsi each with a long, anterior and posterior apical black bristle. Claws extremely long, gently curved and appressed and sharp at the apex. Pulvilli and empodium absent.

Wings: The wings are slender, with the basal half of the wings strongly but gradually narrowed so that the second anal cell is very narrow, slender and linear. First anal cell wider at margin than at any other part and this cell more widely open than any other genus. In other respects the venation is typically like *Leptogaster* Meigen. Both the veins which end the discal cell are of equal length. The two veins which end the second basal cell are fused for some considerable distance distally. Ambient vein complete and alula absent.

Abdomen: The abdomen is quite long, slender and subcylindrical and considerably longer than the wings. There are eight dorsal tergites. The metasternal region behind the coxa is very greatly elongate; all of the coxa are carried forward far beyond the transverse suture of the mesonotum and the area behind the posterior coxa is fully chitinized.

Distribution: Ethiopian: *Dolichoscius francoisi* Janssens (1952).

Subfamily Laphriinae

The subfamily Laphriinae divides readily into the larger flies of the tribe Laphriini and the Andrenosomini on the one hand, and the smaller asilids of the widespread Atomosini. The latter can be quickly recognized in almost every instance by the fully chitinized arch behind the posterior coxae. They are especially at home in the American tropics but are also found more sparingly in southern Asia, scarcely in Australia, southern Africa and Asia Minor. They are absent from Europe.

There are no fossil flies known from any tribe in the subfamily.

Tribe Laphriini

The Laphriini comprise a very successful group of mostly forest-loving types of asilids. Only the genus *Laphria* Meigen is large in terms of species. It is widespread throughout the Holarctic region, but tends to be replaced to a large extent in southern Asia and the South Pacific by *Maira* Schiner, a brilliantly metallic group of flies of comparatively bare aspect and reduced pile. Also, more generally spread over Asia are the subgenera *Choerades* Walker and *Pagidolaphria* Hermann. These ill-defined groups, Hermann (1914) calls "verwandtshaftskreis," or related groups or series. Probably both *Anisosis* Hermann and *Orthogonis* Hermann should be placed in the same category. In North America *Laphria* is partly replaced by *Bombomima* Enderlein and the metallic *Lampria* Macquart. Though the species of *Bombomima* have a characteristic appearance, they are separated from *Laphria* with difficulty. Some of the American species of *Laphria* lack pile or bristles on the metanotal callosity; other species have such pile and it is this group which cannot be satisfactorily separated. All those species of European *Laphria* with which the author is acquainted seem to lack pile on the metanotal callosity. Carrera (1951) has pointed out that the genus *Laphria* in the strict sense does not occur in South America and is replaced by *Smeryngolaphria* Hermann, *Alipiolaphria* Carrera and *Ichneumolaphria* Carrera.

I restrict *Pagidolaphria* Hermann to those species with a quite long proboscis in which the apex is narrowed and upturned, or rounded below. *Choerades* Walker is more loosely defined, based as it is on the relatively appressed pile of the thorax and abdomen, the relative straightness of the anterior branch of the third vein and the relative strength or density of the terminal bristles arising from the apex of the dorsally turned gonopod, which Hermann called the "forceps"; all of these characters vary widely.

The curious and aberrant Nearctic fly *Dasylechia* Williston is one of the rarest of all asilids and is represented by perhaps as few as 5 or 6 specimens in all collections. I have seen several females but no males. Some years past I collected a female trapped on the window of a basement laboratory at Iowa State College. *Anypodetus* Hermann, which is an Old World group, constitutes yet another aberrant genus.

Like *Maira* Schiner in the Asiatic tropics, *Lampria* Macquart in the New World tropics has adopted a metallic coloration. The flies of the genus *Bombomima* Enderlein are strongly suggestive of bumblebees.

KEY TO GENERA OF LAPHRIINI

1. The third antennal segment bears a distinct microsegment carrying an apical spine 2
   Third segment without microsegment. The third segment ends with or without an apical pit, and with or without an apical spine 4

2. Second palpal segment extraordinarily expanded, barrel-like. Large, rare, bumblebee-like, phylogeront flies with massive, very short proboscis; convex face completely covered with dense, long, bristly pile. Claws stout, rather blunt; empodium massive and short.
   Dasylechia Williston

Second palpal segment normal, third antennal segment usually with a pit 3

3. Pulvilli absent. Flies with scattered, prominent bristles but exceptionally reduced pile, presenting a "bare" appearance . . . . Anypodetus Hermann

Pulvilli present. First posterior cell narrow, closed and with a long stalk; ambient vein absent . . Nusa Walker

4. Third antennal segment with numerous, stout bristles dorsally and also laterally or ventrally. First posterior cell closed and stalked. Tergites with stout, lateral bristles. Proboscis robust, but little longer than face.
Laxenecera Macquart

Third antennal segment without such bristles 5

5. Ambient vein absent or depauperate . . . . . Nusa Walker

Ambient vein well developed 6

6. Proboscis elongate, greatly compressed and flattened, except at immediate base, which may be swollen; its apex usually obtusely rounded in lateral aspects 7

Proboscis long or short but distinctly subcylindrical and not conspicuously compressed and flattened laterally. Apex of proboscis blunt and the apical half generally reduced in thickness 19

7. Third antennal segment 3 or 4 times the combined length of first and second segments 8

Third antennal segment not unusually long 11

8. First posterior cell narrow, closed and usually stalked; third antennal segment exceptionally long 9

First posterior cell rather widely open 10

9. Mesonotum with a lateral protuberance above the wing.
Borapisma Hull

Without such protuberance 9a

9a. Face with scales, abdomen pedunculate and wasplike; face scarcely concave, front not swollen.
Rhopalooaster Macquart

Face without scales; abdomen not pedunculate; face concave and front swollen . . . . Phellopteron, new genus

10. Face strongly concave. Front strongly swollen. Third antennal segment of uniform thickness.
Storthyngomerus Hermann

Face very slightly concave, front with little or no swelling. Third antennal segment plane above, arched and expanded below . . . . Dassylina Bromley

11. Face with scales, besides the usual bristles and pile. Neck short; head quite short and wide. Third antennal segment 2 to 2½ times the combined length of the first two segments. Abdomen short, oval and not constricted at base. Femora slender, without bristles. Mesonotum with scanty, subappressed setae and extensive, lateral, not pilose areas. Upper fork of third vein nearly straight; only the medial third of metasternum membranous.
Pholidotus Hermann

Face with ordinary pile or bristles or both 12

12. Hind femur thickened and bearing one or more tubercles and sometimes a basal spur 13

Hind femur not unusually thickened and tuberculate . . 14

13. Metanotal callosity bare. Scutellum with bristles. Face exceptionally short and flat . . . . . Lampria Macquart

Metanotal callosity with bristly pile. Scutellum with only short pile. Face not flattened. Brychomyia, new subgenus

14. Very large, densely pilose flies of wide, robust abdomen; the dense, erect, or nearly erect pile of the mesonotum effectively conceals the ground color. Metanotal callosity always with bristly pile. Abdomen usually likewise densely pilose . . . . Bombomima Enderlein

Usually smaller, or more slender species, the ground color of mesonotum never wholly concealed by erect pile . . 15

15. Metanotal callosity with bristly pile (some Nearctic species) . . . . Laphria Meigen

Metanotal callosity never with pile 16

16. Proboscis long but pointed at apex, either sharply or bluntly, and the apex upturned; apex with many coarse punctures.
Pagidolaphria Hermann

Apex of proboscis also greatly compressed laterally and long and evenly and bluntly rounded at apex. A few punctures present or none 17

17. Bare, shining flies, often highly metallic flies. Hind femur distally swollen above, leaving the lower surface plane. Face bristles usually reduced to exceptionally long, isolated elements distributed over the low, ventral gibbosity and sometimes with as few as 3 or 4 pairs . Maira Schiner

Not such flies 18

18. Flies with short, appressed mesonotal pile; abdomen generally with dense mats of appressed pile. Face usually with a rounded gibbosity on the lower half, bearing a few, long, wiry bristles with scanty, additional pile and face concave shortly below the antenna. Upper branch of third vein more or less straight. Terminalia often with spatulate extensions from the inverted gonopod and often with tufts containing a few, stout, long bristles.
Choerades Walker

Flies with longer, mostly erect pile. The face tends to have dense, mostly but little differentiated pile and bristles. Upper branch of third vein gently or strongly curved . . . . Laphria Meigen

19. Metanotal callosity bristly pilose. Face short, straight or concave with only weak bristles and hairs. Small, pale yellow flies . . . . Cenochromyia Hermann

Metanotal callosity without pile 20

20. Proboscis long but pointed at apex, either sharply or bluntly and the apex upturned. Apex coarsely punctulate.
Pagidolaphria Hermann

Proboscis long, relatively slender, or quite short, stout and basally swollen. Apex of proboscis subcylindrical or even slightly depressed but never with apex upturned from below. Punctures absent 21

21. First posterior cell closed and stalked. Abdomen elongate but not narrowed basally. Upper branch of third vein nearly straight. Basal angle of third posterior cell sharp and narrow. Hind femur widest beyond the middle but not greatly swollen . . . . . . Ichneumolaphria Carrera

First posterior cell open 22

22. Face straight or slightly convex over the whole surface or gradually swollen below. Proboscis of moderate length but never short, stout or basally swollen. First palpal segment more or less fused 23

Face swollen below with a low gibbosity or gently extended from antenna to epistoma. Proboscis quite short and robust, scarcely longer than face 25

23. Face gradually swollen from antennal base to epistoma. Third antennal segment short oval; Old World species.
Anisosis Hermann

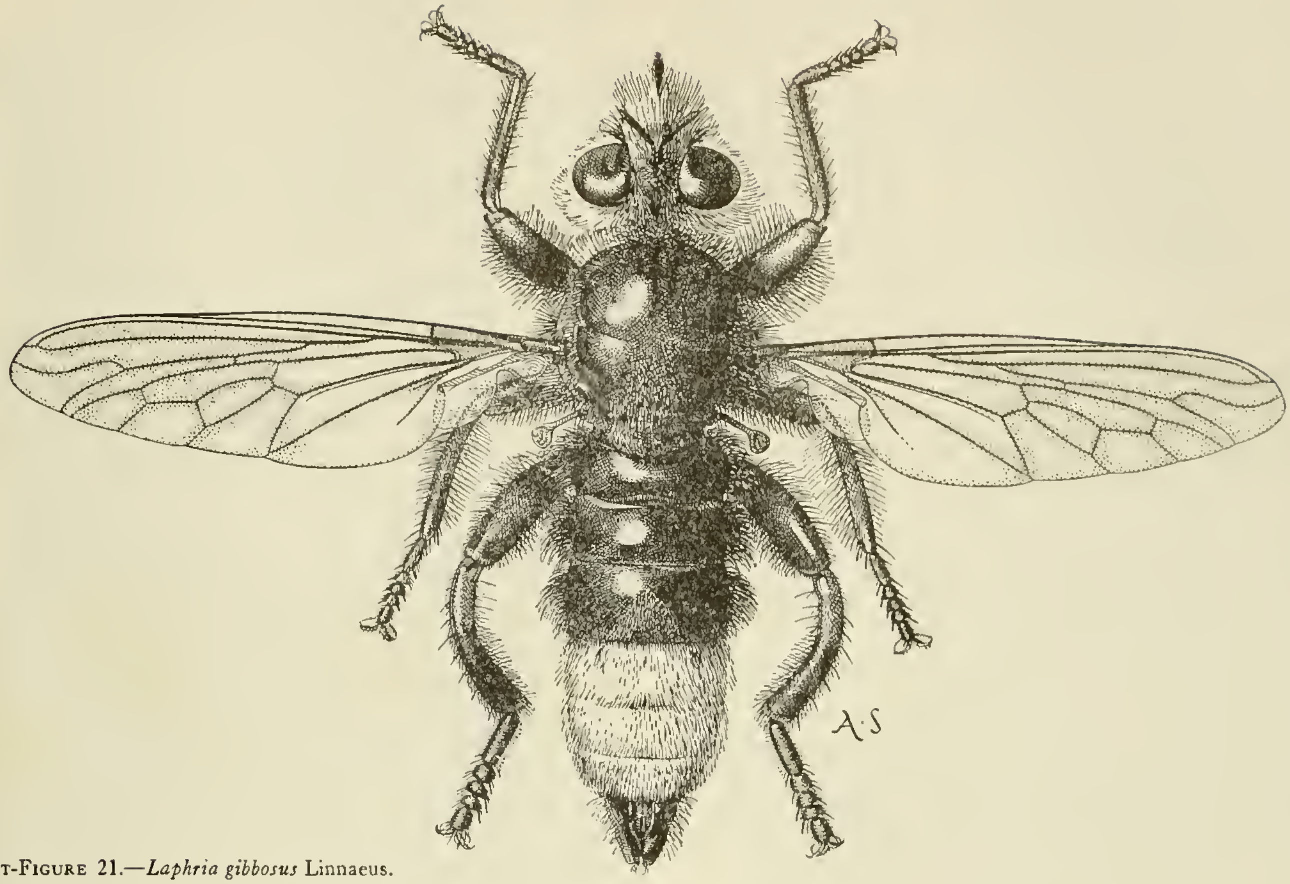
Face gently rounded or very slightly convex over the whole surface, or nearly plane. Third antennal segment slender, six or more times longer than wide 24

24. Face with some long, scattered, slender bristles on the upper half and also below. Front with bristly hairs. Hind femur a little swollen distally, its ventral surface with long hairs. Anterior branch of third vein S-shaped, ending considerably above the wing apex. Subepistoma nearly horizontal . . . . Alipiolaphria Carrera

Face with or without bristles on the upper half. Anterior branch of third vein gently curved or straight. Subepistoma oblique . . . . Smeryngolaphria Hermann

25. Vein closing the discal cell usually aligned and confluent with the vein closing the fourth posterior cell, or off-set by a short distance, leaving the lower end vein of the discal cell quite short; rather bare flies of dark blue black coloration and blackish wings; tergal bristles strong.
Orthogonis Hermann

Lower vein closing the discal cell usually as long as the upper vein; if the former is eliminated, or greatly reduced the flies are chiefly yellow or brown in color.
Smeryngolaphria Hermann



TEXT-FIGURE 21.—*Laphria gibbosus* Linnaeus.

Genus *Laphria* Meigen

FIGURES 233, 607, 1211, 1215, 2079, 2084, 2135, 2162

Lapria Meigen, Nouvelle classification . . ., p. 25, 40, 1800, *lapsus.*

Laphria Meigen, Mag. Insectenkunde, vol. 2, p. 270, 1803. Emendation. Type of genus: *Asilus gibbosus* Linne, 1758. Designated by Latreille, 1810, the first of six included species.

Rhopalocera Megerle (Ms.), *in* Meigen, Systematische Beschreibung der . . . zweiflügligen Insekten, vol. 2, p. 301, 1820. Name without species.

Sullaphria Becker (Ms.), *in* Hennig, 1941, with species *asilina;* both without characterization.

Usually large and robust flies, never very slender; characterized by the prominent and gibbous face. The abundant pile is often matted and appressed, especially on the abdomen. The proboscis is elongate, very strongly compressed laterally, with bluntly rounded apex and the palpus is cylindrical with only the basal segment open. Except for a subapical pit or groove, the third antennal segment is unmodified. The lower end vein of the discal cell is long and nearly parallel with the upper margin of the cell. Metanotal callosity bare in the type of genus and in European species and in many North American species. Length in the type of genus 27 mm.; more often 15 to 20 mm. in length and in some species as little as 10 mm.

Head, lateral aspect: The head is long; both face and occiput are prominent. The face is especially prominent and gibbous on the lower half or more, but less on the upper third, and the intervening area is concave. The occiput is tumid in the middle, and especially below, due to the gradual and pronounced recession of the eye. Pile of occiput dense, long and coarse, except behind the vertex, where there is comparatively little pile; bristles are very weak or absent. The proboscis is elongate, extending well beyond the face, strongly compressed laterally, bluntly rounded apex which is punctured and has numerous, stout, bristly hairs which extend a short distance ventrally. The base is a little swollen below with numerous, long, bristly hairs. Palpus clearly of two segments; the first segment is excavated, the second is cylindrical, with bristles and bristly pile on all sides. Antenna attached at the upper fourth of the head, elongate but not as long as the head; the first segment is twice as long as the second, with more or less erect, bristly pile above and below and laterally; the second segment has short or sometimes long, stout, apically directed bristles. The third segment is longer than the first two and is gradually and slightly widened to near the apex, which is rounded; this segment is, then, usually clavate. Apex with a small pit and minute spine and often a sensory groove.

Head, anterior aspect: The head is about as wide as the thorax; the face is wide, nearly one-third the head width, slightly divergent below and densely covered above and below with long, coarse pile and slender bristles, which are sometimes stout and conspicuous down the middle of the gibbosity. More rarely the pile is reduced and flattened laterally, the bristles reduced to a vertical row on each side of 10 or 12 elements. It is possible that such species should be removed to *Maira* Schiner. Subepistomal area large, concave and oblique. The front is short, generally bare, the sides next to the eye strongly sloping and with a conspicuous band of long, slender bristles or bristly pile. Vertex deeply excavated, with lateral pile, the sides a little divergent. The ocellarium is large but low, with anteriorly a pair of weak bristles and some additional bristly hairs. Sometimes there may be as many as 3 pairs of bristles or 1 pair of stout bristles.

Thorax: The mesonotum is broad and low and gently convex, densely covered with erect pile, including the humerus. The pile is undifferentiated but becomes longer posteriorly. The lateral complement of bristles is rather weak in many species and strong in others and consists of 1 or 2 notopleural, 3 to 6 supraalar; 3 to 9 postalar, and 4 to 10 pairs of scutellar bristles. The metanotal callosity is usually without pile or bristles. The upper corner of the mesopleuron has 1 to 4 long, stout bristles and numerous, equally long, slender bristles or bristly hairs in the type of genus. Some species have only a few scattered hairs posteriorly and dorsally. Metapleuron with a wide band of long, distally curved bristles. Prosternum fused and continuous. Metasterum pilose laterally and ventrally; postmetacoxal area widely membranous, or sometimes with a short, rounded, inward extension of the lateral sclerite.

Legs: The femora are stout and distinctly though moderately swollen. On the hind femur the swelling is greatest on the outer half; its tibia also swollen, a little curved and distinctly robust. Pile of the legs conspicuous, bristly in character, rather long and dense. In the more pilose species such as the type of genus, most of the bristles grade into the more slender elements and then into stiff pile, the length varying considerably. On the hind femur are 3 stout, ventrolateral bristles on the outer third and 1 or 2 medially nearer the apex. Its tibia bears 6 or 7 stout, dorsal bristles, their tarsi and especially their basitarsus robust and swollen. In some species there may be an irregular double row of dorsal bristles containing some 20 elements or they may be reduced to 1 row of 2 or 3 bristles. In such species as the Nearctic *Laphria sadales* the pile of the legs is everywhere reduced to scanty, short, subappressed setae and extremely few bristles. Such species also have the thoracic and abdominal pile similarly reduced. Claws stout, quite sharp, bent strongly near the apex; the pulvilli large and broad, the empodium swollen towards the base and a little flattened.

Wings: The marginal cell is closed and stalked but short in most species, longer in others. The anterior branch of the third vein is strongly arched from its base and sigmoid; it ends a little above the wing apex; the posterior branch ends far behind. The first posterior cell is open and only slightly narrowed; the lower end vein of the discal cell is long and strongly pulled towards the base. Fourth posterior cell closed with a long stalk. Anal cell closed, the ambient vein complete; the anterior crossvein is rectangular and enters the discal cell before the middle, sometimes at the basal fourth.

Abdomen: In most species the abdomen is relatively narrow and a little elongate, as wide as the mesonotum but scarcely as wide as the thorax. The type of genus and several European species such as *Laphria flava* and *ephippium* are exceptions, the abdomen being broad and robust and rather short. Pile of abdomen generally dense and erect, almost obscuring the ground color; in some cases it is matted into posteriorly divergent hair patterns. In *Laphria sadales* the abdomen appears almost bare because of the minute, appressed setae. Males have seven tergites, the seventh quite short; females with eight tergites, the seventh and eighth both short and possibly to be considered part of the ovipositor. Male terminalia rotate one-half, conspicuous, large and elongate. The undivided epandrium forms a long, ventral, bowl or trough-shaped structure. The gonopod is conspicuous, often with lobes or prongs and the hypandrium is very short or absent, the genital cavity open. Female terminalia short and conical, the sternal element broad and flattened.

Laphria is much the largest genus in the subfamily. Those species still credited to South America probably belong in other genera such as *Pilica* Curran, *Smeringolaphria* Hermann and others. While to a considerable extent replaced by *Maira* Schiner and *Choerades* Walker in the South Pacific, there are still many species remaining in that area and a few extend into Australia.

Distribution: Nearctic: *Laphria aeatus* Walker (1849); *aimatis* McAtee (1918); *aktis* McAtee (1918); *altitudinum* Bromley (1924); *anthrax* Williston (1884); *canis* Williston (1884); *carbonaria* Snow (1896); *carolinensis* Schiner (1867); *coquilletti* McAtee (1918); *crocea* McAtee (1918); *disparella* Banks (1911); *felis* Osten Sacken (1877), *felis atripes* McAtee (1918); *ferox* Williston (1884); *flavipila* Macquart (1834); *franciscana* Bigot (1878); *georgina* Wiedemann (1821); *index* McAtee (1918); *ithypyga* McAtee (1918); *janus* McAtee (1918); *lasipus* Wiedemann (1828); *melanogaster* Wiedemann (1821); *milvina* Bromley (1929); *pubescens* Williston (1884); *rapax* Osten Sacken (1877); *sackeni* Wilcox (1936); *sadales* Walker (1849); *saffrana* Fabricius (1805); *scorpio* McAtee (1918); *sericea* Say (1823); *sicula* McAtee (1918); *terra-novae* Macquart (1838); *trux*

McAtee (1918), *trux audax* McAtee (1918); *varipes* McAtee (1918); *ventralis* Williston (1885); *vivax* Williston (1884), *vivax anthemon* McAtee (1918); *vultur* Osten Sacken (1877); *winnemana* McAtee (1918); *xanthippe* Williston (1884).

Neotropical: *Laphria albitibialis* Macquart (1847) [=*albitibia* Macquart (1848)]; *albolineata* Macquart (1849); *calogastra* Philippi (1865); *componens* Walker (1860); *contusa* Wiedemann (1828); *dentipes* Fabricius (1805); *dichroa* Wiedemann (1828); *glauca* Enderlein (1914); *homopoda* Bellardi (1862); *?ichneumon* Osten Sacken (1887); *marginalis* Williston (1901); *?mellipes* Wiedemann (1828); *pilipes* Macquart (1834); *proxima* Walker (1855); *?pusilla* Wiedemann (1828); *rubescens* Bigot (1878); *ruficauda* Williston (1885); *transatlantica* Schiner (1868); *triligata* Walker (1860); *venezuelensis* Macquart (1846); *violacea* Macquart (1846); *willistoniana* Enderlein (1914) [=*coerulea* Williston (1901)].

Palaearctic: *Laphria abdominalis* Walker (1855); *aeneiventris* A. Costa (1857); *annulata* Gimmerthal (1834); *aurea* Fabricius (1794); *auriflua* Gerstaecker (1861); *bellifontanea* Villeneuve (1928); *benardi* Villeneuve (1911); *bilykovae* Paramonov (1930); *bomboides* Macquart (1849); *caspica* Hermann (1905); *chrysocephala* Meigen (1820); *coarctata* L. Dufour (1833); *coerulescens* Macquart (1834); *cyaneogaster* Macquart (1838); *dimidiata* Loew (1847); *dispar* Coquillett (1898); *dizonias* Loew (1847); *empyrea* Gerstaecker (1861) [=*fulvibarba* Loew (1862)]; *enardi* Villeneuve (1911); *ephippium* Fabricius (1781) [=*?dorsalis* De Geer (1776)]; *flava* Linné (1767) [=*conopsoides* Scopoli (1763), *ephippium* Panzer (1797), *ferox* Scopoli (1763), *fulva* Fourcroy (1785), *pedemontana* Fabricius (1794)], *flava escorialensis* Strobl (1906); *flavescens* Macquart (1838); *flavidorsum* Matsumura (1916); *galathei* A. Costa (1857), *galathei minor* A. Costa (1857); *gibbosus* Linné (1758) [=*bombilius* De Geer (1776)]; *hakiensis* Matsumura (1916); *hecate* Gerstaecker (1861); *isshikii* Matsumura (1916); *karafutonis* Matsumura (1916); *kisjakovskiji* Paramonow (1929); *komurae Matsumura* (1911); *laterepunctata* Macquart (1838); *leucocephala* Meigen (1804); *limbata* Macquart (1834) [=*scutellata* Macquart (1835)]; *meridionalis* Mulsant and Revelière (1860); *mitsukurii* Coquillett (1898); *motodomariensis* Matsumura (1916); *neutralis* Duda (1940); *nigripennis* Megerle in Meigen (1820); *nigripes* Paramonov (1929); *nigrovittata* Matsumura (1916); *nitidula* Fabricius (1794); *ogumae* Matsumura (1911); *otanegawana* Matsumura (1916); *praelusia* Séguy (1930); *rufa* Roeder (1885); *ruppelii* Wiedemann (1828); *sapporensis* Matsumura (1911); *strandi* Duda (1940); *tibialis* Meigen (1820); *varia* Loew (1865); *varipes* Bigot (1878); *venatrix* Loew (1847); *vulpina* Meigen (1820), *vulpina limbinervis* Strobl (1900); *yamatonis* Matsumura (1916).

Ethiopian: *Laphria albimaculata* Macquart (1838); *aureopilosa* Ricardo (1900); *auricorpus* Hobby (1948); *aurifer* Ricardo (1925); *bella* Loew (1858); *bequaerti* Bromley (1935); *bipennicilla* Bigot (1891); *breonii* Macquart (1838); *carbonaria* Ricardo (1925); *contristans* Hobby (1948); *flavipes* Wiedemann (1821 [=*varipes* Macquart (1834)]; *hera* Bromley (1935); *hirtipes* Fabricius (1805); *iola* Bromley (1935); *lateralis* Fabricius (1805); *luctuosa* Macquart (1847); *macra* Bigot (1859); *metalli* Walker (1851); *nigrescens* Ricardo (1925); *nigribimba* Bromley (1935); *nusoides* Bromley (1930); *praeceps* Walker (1855); *ricardoi* Bromley (1935); *schoutedeni* Bromley (1935); *serpentina* Bezzi (1908); *submetallica* Macquart (1838); *superbiens* Bezzi (1908); *ufens* Walker (1849); *variabilis* Bromley (1947).

Oriental: *Laphria aberrans* Wulp (1898); *abscissa* Walker (1860); *amabilis* Wulp (1872); *apiformis* Enderlein (1914); *argentata* Wiedemann (1828); *aureola* Wulp (1872); *auricomata* Hermann (1914); *aurigena* Walker (1851); *auroria* Wiedemann (1828); *azurea* Hermann (1914); *barbicrura* Rondani (1875); *basalis* Hermann (1914); *basifera* Walker (1856); *bipartita* Macquart (1855); *claripennis* Bigot (1878); *completa* Walker (1857); *comptissima* Walker (1857); *detecta* Walker (1857); *dimidiata* Macquart (1846) [=*?taphius* Walker (1849)]; *diversa* Wulp (1881); *divulsa* Walker (1864); *flavifacies* Macquart (1849); *formosana* Matsumura (1916); *fulvicrura* Rondani (1875); *furva* Wulp (1898); *futilis* Wulp (1872); *gilvoides* Wulp (1898); *hermanni* de Meijere (1924); *imbellis* Walker (1856); *incivilis* Walker (1857); *interrupta* Walker (1857); *javana* Macquart (1834); *lobifera* Hermann (1914); *luteipennis* Macquart (1848); *mulleri* Wulp (1872); *nigrohirsuta* Lichtwardt (1909); *orcus* Walker (1856); *partita* Walker (1857); *plana* Walker (1856); *pseudolus* Osten Sacken (1882); *pyrrhothrix* Hermann (1914); *radicalis* Walker (1856); *rudis* Walker (1857); *semifulva* Bigot (1878); *seticrura* Rondani (1875); *sobria* Walker (1856); *solita* Wulp (1872); *taipenensis* Matsumura (1916); *tricolor* Wulp (1872); *unifascia* Walker (1857).

Australian: *Laphria ampla* Walker (1861); *aperta* Walker (1859); *argentifer* Walker (1861); *auribasis* Walker (1864); *auricincta* Wulp (1872); *bancrofti* Ricardo (1913); *bernsteini* Wulp (1872); *binigra* Bigot 1878); [=*bisnigra* Bigot (1878)]; *calopogon* Bigot (1878); *clavata* White (1914); *coerulea* Boisduval (1835) [=*iodisoma* Boisduval (1835)]; *comata* White (1917); *complens* Walker (1860); *conveniens* Walker (1861); *cyanea* Walker (1855); *definita* Wulp (1872); *disciplena* Walker (1861); *dissimilis* Doleschall (1858); *diversipes* Macquart (1855); *doryca* Boisduval (1835) [=*dorei* Macquart (1838)]; *erythropus* Wulp (1898); *ferruginosa* Wulp (1872); *flagellata* Walker (1862); *flavifemorata* Macquart (1849); *fulviceps* Macquart (1849); *fulvipes* Ricardo (1913); *hirta* Ricardo (1913); *liturifera* Walker (1861); *manifesta* Walker (1859); *melania* Bigot (1878); *nigrocoerulea* Wulp (1872); *notabilis* Macquart (1838) [=*ardescens* Walker (1861), *flagrantissima* Walker (1859)]; *obliquistriga* Walker

(1861); *ornatipennis* Macquart (1849); *ostensa* Walker (1862); *pernigra* Wulp (1872); *puer* Doleschall (1858); *rubidifasciata* Wulp (1872); *rufifemorata* Macquart (1846); *setipes* Walker (1862); *telecles* Walker (1849); *tibialata* Walker (1865); *tristis* Doleschall (1857); *variana* White (1917).

Oceania: *Laphria nigrocoerulea* Kirby (1888); *ogasawarensis* Matsumura (1916); *okinawensis* Matsumura (1916).

Country unknown: *Laphria alebas* Walker (1849); *bicolor* Macquart (1834); *chrysocosmia* Wiedemann (1828); *flavipennis* Macquart (1838); *gracilis* Macquart (1838); *hirsuta* Wiedemann (1828); *leucospila* Wiedemann (1828); *picipes* Walker (1855); *senopeza* Macquart (1838); *tidius* Walker (1849); *tucca* Walker (1849).

The larva and pupa of several species of European *Laphria* have been described by various authors such as Lucas (1848), Perris (1871), Brauer (1882), Lundbeck (1908), and Melin (1923), who illustrated several species.

The dipterist interested in Australian Laphriini is referred to Ricardo (1913). I have accepted much of the synonymy she suggested but not altogether.

Genus *Bombomima* Enderlein

FIGURES 213, 613, 1212, 1216

Bombomima Enderlein, Zool. Anzeiger, vol. 44, p. 253, 1914. Type of genus: *Laphria fulvithorax* Fabricius, 1805, by original designation.

Very large, woolly pilose flies of broad, robust form, many of which strongly resemble humblebees. They were separated by Enderlein from *Dasyllis* Loew, a genus which is restricted to Neotropical species. They differ to a marked extent in the character of the proboscis and belong to different tribes. As Curran has pointed out, *Bombomima* is not readily separated from *Laphria* Meigen. Most *Laphria* have the lateral metanotal slopes without pile; the species of *Bombomima* have pile on this structure, sometimes abundant and sometimes scanty and some New World species of *Laphria* also have a little pile on these callosities. In general the species of *Bombomima* may be recognized by the broad character of the abdomen, the more woolly pile at least generally present on the thorax but sometimes reduced on the abdomen. For many years, before Enderlein (1914) distinguished between the two genera, the many Nearctic species which now fall in *Bombomima* were described or treated under the name *Dasyllis*. The species of *Dasyllis* are restricted to South America. The genus *Bombomima* includes some bulky and truly giant flies measuring up to 30 mm. in length. Length for most species 15 to 22 mm.

Head, lateral aspect: The head is long, the face very prominent and gibbous, it may have an upper gibbosity as in *Laphria*, or this may be reduced as the lower one is emphasized. The proboscis tends to be widened or higher, near the apex, than in *Laphria* giving it somewhat spatulate appearance. Palpus, occiput, and the form of the eyes similar to *Laphria*. The antenna is attached perhaps even higher upon the head, leaving a very short front. The antenna is of variable length, but always moderately long, nearly as long as the head and sometimes longer. Front and vertex similar, the broad ocellarium with 2 or 3 pairs of long bristles.

Thorax: The thorax is densely long, erect pilose in which anteriorly and laterally there is a considerable amount of flat appressed pile of the same color. The lateral complement of bristles is rather weak and more or less hidden among pile; it consists of 2 notopleural, 7 to 12 supraalar, and a dense tuft of slender bristles and bristly pile on the postalar and scutellum. The scutellum is convex, faintly pollinose, but shining, with a little scattered, erect pile and additional fine, bristly marginal pile, besides the bristles. Pleuron with characteristic dense tufts of long pile over all of the propleuron, the posterior mesopleuron, the metapleuron and the metanotal callosity, the latter pile being of distinctly shorter character. Prosternum fused and continuous. The pile of the mesonotum and pleuron and often part of the abdominal pile is bright yellow, or brown, and the color of the cephalic, thoracic, and abdominal pile are important specific characters. Postmetacoxal area membranous.

Legs: All of the femora are extremely stout, rather short and more or less swollen; the tibia are likewise stout; their pile is dense, long, fine but bristly and bushy in character. There is sometimes a dense cluster of very stout bristles on the anterior surface of the middle femur well hidden by pile; the bristles of the tibia are also obscured by the density of the pile. Claws stout, rather sharp, strongly bent at the apex; the pulvilli large; the empodium bladelike.

Wings: The wings are quite similar to *Laphria*, veins tinged with light brown.

Abdomen: The abdomen is much broader than in most species of *Laphria* and generally more densely pilose, the pile either matted or erect. Males with six tergites and a liplike extension from the seventh. Females with six tergites, the seventh concealed beneath the sixth, the eighth protruded beyond but much less wide, rather convex and perhaps to be considered part of the ovipositor. The ovipositor is short and conical and surrounded by long, rather prominent bristles from the eighth segment. Male terminalia similar to *Laphria*, half rotate, the ventral epandrium also very large and bowllike, the gonopod meeting distally but leaving the genital space more or less open.

This genus is restricted to the Nearctic and the species are considerably more numerous in the east than in the west. It contains some of our largest asilids in point of bulk.

Greene (1918) describes and beautifully illustrates immature stages of *Bombomima thoracica*. The larvae are found in rotting wood. Bromley (1952) placed this species in the synonymy of *B. fulvithorax*.

Distribution: Nearctic: *Bombomima affinis* Macquart (1855); *apila* Bromley (1951); *astur* Osten

Sacken (1877); *asturina* Bromley (1951); *brunnea* Bromley (1929); *champlainii* Walton (1910); *cinerea* Back (1904); *columbica* Walker (1866); *divisor* Banks (1917); *engelhardti* Bromley (1931); *fattigi* Bromley (1951); *fernaldi* Back (1904); *flavicollis* Say (1824); *fulvithorax* Fabricius (1805) [=*alcanor* Walker (1849), *thoracica* Fabricius (1805)]; *grossa* Fabricius (1775) [=*analis* Macquart (1838), *flavibarbis* Harris (1862), *tergissa* Say (1823)]; *huron* Bromley (1929); *insignis* Banks (1917); *lata* Macquart (1849) [=*analis* Macquart (1846)]; *macquarti* Banks (1917); *melanopogon* Wiedemann (1828); *nigella* Bromley (1934); *partitor* Banks (1917); *posticata* Say (1824); *royalensis* Bromley (1950); *sackeni* Banks (1917); *sacrator* Walker (1849); *scutellaris* Bromley (1929); *semitecta* Coquillett (1910); *unicolor* Williston (1884); *virginica* Banks (1917); *vorax* Bromley (1929).

Genus *Choerades* Walker

FIGURES 1243, 1252, 2073, 2078, 2087

Choerades Walker, Insecta Saundersiana, vol. 1, pt. 2, p. 109, 1851. Type of genus: *Laphria vulcanus* Wiedemann, 1828, as *Choerades aurigena* Walker, 1851, by monotypy.

Epholkiolaphria Hermann, Ent. Mitt. vol. 3, p. 89, 1914. Type of genus: *Laphria egregia* Wulp, 1898, by original designation.

Large flies which represent a rather extensive group of the large tribe Laphriini. Characteristic of the Oriental and South Pacific regions, they are comparatively ill-defined and while of generally short pilose and bare aspect, they are distinguished primarily on the character of the male terminalia. Like all the members of the tribe Laphriini the terminalia are permanently rotate so that the epandrium is placed ventrally and is bowllike and undivided and not formed into forceps. It is transverse at the apex with the terminal proctiger beyond and in this respect does not differ from other members of the Laphriini. What I interpret as the gonopod, which consists of the large, lateral and ventral portion of the terminalia and which Hermann calls the forceps of the hypopygium, has in *Choerades* a posterodorsal process more or less narrow and knifelike and sometimes clearly composed of fused or semifused bristles. This posterodorsal appendage and a somewhat more widely opened dorsal aspect exposing the interior cavity of the terminalia constitute, as I understand it, the only character upon which one may differentiate this group with any clarity. Length 15 to 30 mm.

It is quite true that in this group the face is rather distinct in the character of the facial pile and bristles. The gibbosity of the face tends to have the pile reduced in quantity and length but with on each side a vertical row of 3 to 6 long, isolated, wirelike bristles, and the pile from the upper half of the face tends to be somewhat matted or appressed and flattened or scalelike, as well as golden or silver in color. However, both of these facial characteristics are shared by *Pagidolaphria* Hermann and *Maira* Schiner, which are both from the same general regions, and both with the pile of thorax and abdomen usually largely reduced. *Pagidolaphria*, however, may be dependably separated on the basis of the narrow, upturned apex of the proboscis, whereas *Maira* and *Choerades* have the proboscis quite as in *Laphria*. *Maira*, moreover, tends to have a posterodorsal appendix on the gonopod similar to that of *Choerades* and I have found no really satisfactory separation of *Maira* and *Choerades*, except on the basis of the strong, metallic coloration characteristic of most species which have been placed in *Maira*.

I find no venational characters which are constant in any of these groups. It is quite true that if one compares typical European species of *Laphria* such as *gibbosa*, *flava*, or *ephippium* there are marked differences in the character of the pile, the terminalia, and the pile of the bristles of the face as compared with these south Asiatic flies, but there are many integrading species and the narrowness of the posterodorsal appendage remains the only satisfactorily separating characteristic. Hermann has called attention to the fact that some of the species of *Choerades* have tufts or clusters of conspicuously strong bristles arising from the lower part of the terminalia, which would be the apex of the epandrium.

Distribution: Palaearctic: *Choerades amurensis* Hermann (1914); *dimidiata* Loew (1847); *dioctriaeformis* Meigen (1820); *fimbriata* Meigen (1820) [=*marginata* Megerle, Ms. in Meigen (1820)]; *fuliginosa* Panzer (1798) [=*auribarbis* Meigen (1820), *cincta* Meigen (1820) not Fabricius]; *fulva* Meigen (1804) [=*aurifera* Schiner (1862), *aurigera* Dufour (1850), *proboscidea* Loew (1847)]; *gilva* Linné (1758) [=*bilineata* Walker (1849), *rufa* De Géer (1776)]; *ignea* Meigen (1820) [=*gilva* Meigen (1804) not Linné]; *lapponica* Zetterstedt (1842); *marginata* Linné (1758) [=*aurea* Olivier (1789), *femorata* Meigen (1804), *fulgida* Meigen (1820), *?media* O. F. Müller (1764), *nigra* Meigen (1804), *nigra* Scopoli (1763), *nigrifrons* Megerle (Ms.) in Meigen (1820), *podagrica* Meigen (1820)]; *rufipes* Fallen (1814); *ursula* Loew (1851).

Oriental: *Choerades basigutta* Walker (1856); *egregia* Wulp (1898); *inaurea* Walker (1856); *lepida* Walker (1857); *notabilis* Walker (1856); *phillipinensis* Enderlein (1914) [=*partialis* Bezzi (1917), *partita* Walker (1860) not Walker (1857)]; *vulcanus* Wiedemann (1828) [=*aurigena* Walker (1851), *blumei* Wulp (1872)], *vulcanus argentata* Enderlein (1914), *vulcanus auraria* Enderlein (1914), *vulcanus chrysargyrea* Enderlein (1914); *xanthothrix* Hermann (1914).

The assignment of species to *Choerades* in the above list is largely based on the disposition made by Engel (1928). Since Enderlein (1914) resurrected *Choerades* Walker (1851) for the same group of species which Hermann used to establish *Epholkiolaphria* Hermann (1914), I conclude that Walker's name must be used.

Genus *Pagidolaphria* Hermann

FIGURES 237, 274, 608, 610, 1239, 1248, 2074, 2089

Pagidolaphria Hermann, Ent. Mitt., vol. 3, p. 85, 1914. Type of genus: *Laphria gigas* Macquart, 1838, by original designation.

Saliomima Enderlein, Zool. Anzeiger, vol. 44, no. 6, p. 243, 1914. Type of genus: *Laphria reinwardtii* Wiedemann, 1828, by original designation.

These flies are often very large and striking in appearance and rank among the giants of Diptera. They are characterized by the short or rather thinned eyes, the prominent facial gibbosity and the extremely large, long, polished, strongly and laterally compressed and apically punctate proboscis. The facial bristles are stout and remarkably long, many of them as long as the proboscis. Mesonotal pile quite short, fine, appressed and setate for the most part.

In characterizing the flies of this genus, Hermann emphasized the strong divergence of the two branches of the third vein, the cubital fork, and noted that the anterior branch, instead of making the usual conspicuous, S-shaped bend, generally extends in a straight line to the wing margin, ending at some distance above the wing apex and in consequence leaving the second submarginal cell triangular. He formed this group in 1914 for certain large species of *Laphria* Meigen characteristic of parts of India and the Indian Archipelago. In the same year a few weeks later Enderlein erected the genus *Saliomima* for the same group of species, and emphasized that the pile of mesonotum is usually appressed and golden and the hind femur generally with but little or no swelling. While this genus is geographically useful, I should like to point out, however, that the form of the anterior branch of the third vein is somewhat variable and that none of these characters given serve to sharply delimit the group. Length 25 to 40 mm.

Head, lateral aspect: The face is poorly developed and short on the upper third, but prominent and protuberant below, with a conspicuous gibbosity. The eye is short and high and wide from dorsal aspect, very slightly narrowed below; its posterior margin is nearly plane through the middle. The occiput is moderately prominent on the lower half, but obliterated on the upper half; the pile is long and fine and especially abundant behind the upper eye corners; it is somewhat less abundant in the middle and comparatively scanty ventrally; bristles absent. The proboscis is exceptionally long; from a lateral view it has parallel sides; it is very strongly compressed laterally; the apex is truncate or barely rounded and laterally on the outer fifth bears numerous coarse punctures, together with a dorsal, apical, and ventral fringe of short, stiff pile on this outer part. A dorsal ridge is almost absent; there are a number of long, fine hairs ventrally on the basal half. Palpus clearly of two segments; the second is rather slender and bears numerous, stiff hairs at the apex laterally and below and others dorsally. The antenna is attached at the upper sixth of the head and is rather elongate; the first segment is twice as long as the second. The third is nearly twice as long as the first two segments combined and is laterally compressed, with a plane dorsal edge; it is widest through the middle, gently tapered at base and apex, and bears laterally at apex a small, spoon-shaped opening within which is a minute spine; this hoodlike apex may represent a small, fused microsegment.

Head, anterior aspect: The face below the antenna is a little more than one-fourth the head width with parallel sides. Subepistomal area small, nearly horizontal, deeply concave and bare. The face is micropubescent and bears on the upper half numerous, stiff hairs which are only moderately long; on the gibbosity is pile of similar length and character, especially sublaterally. On the lower two-fifths of the face and confined to the gibbosity are a number of exceptionally long, basally stout, attenuate, wavy bristles; there may be as many as 24 bristles present, and some are as long as the proboscis. Front exceptionally short, with a few, fine setae along the eye margin; the vertex is moderately excavated with slanting sides, the ocellarium small, carrying 2 pairs of rather slender bristles, one of them especially weak. Eyes with the central facets enlarged.

Thorax: The mesonotum is pollinose; on the pleuron pollen is chiefly restricted to the lower parts. The pile of the mesonotum is short, fine and appressed along the middle; laterally it is very short and appressed, except for a lower, lateral fringe of somewhat longer, erect or nearly erect pile. Humerus erect pilose with 3 or 4 long, weak bristles. Acrostical elements present or undifferentiated; dorsocentral bristles are present but weak. At the postalar level are about 6 or 7 quite long, slender bristles. Lateral bristles are present as follows: 1 or 2 posthumeral, 1 stout and several weak notopleural, a row of 5 or 6 long, supraalar bristles. The postalar has 10 or 12 long, moderately stout bristles and other weaker bristles and hairs. Scutellar margin with 4 or 5 pairs of moderately stout, long, attenuate bristles and additional long, stiff hairs. Scutellum thick, convex, with a matted, appressed fringe of dense, coarse, setate pile on the apical half. Propleuron with some long, stiff hairs. Pronotum with numerous, weak bristles or bristly hairs; nearly the whole of the mesopluron bears long, erect, stiff pile and its upper posterior corner has 3 or 4 long bristles; upper sternopleuron and the posthypopleuron with a few long, slender bristles which are attenuate and curled backward on the apical portion. Metanotal slopes micropubescent only; metasternal slopes and the metasternum with some long, fine pile. Postmetacoxal area membranous; tegula with numerous, appressed setae; squama with a multiple fringe.

Legs: All the femora are stout, especially the anterior four. Hind femur slightly arcuate, thickened towards the middle and the apex; it bears rather short, fine, suberect setae dorsally and these are quite dense dorsomedially but finer, suberect and more scattered laterally. On the ventral half of the lateral margin and the whole of the ventral surface there is a dense fringe of quite long, fine, bristly hairs, the ends attenuate and curled. Hind tibia with a similar, matching fringe ventrally but the apex bears a dense, ventral tuft of long pile; a brush of setae begins before the middle but is found only on the medial surface. This tibia has the following slender bristles: 3 or 4 dorsal on the apical half; 3 stouter dorsolateral bristles in the middle. Middle femur with 2 stout, posteroapical and 2 anterior bristles on the outer half and also anteriorly and ventrally a fringe of abundant, long, fine, bristly hairs. Middle tibia with exceptionally slender bristles: 4 dorsal, 5 or 6 posterodorsal and a long anterior and posterior fringe, each containing some 15 long elements and shorter ones. Anterior femur and tibia similar with apical bristles absent on the femur and the tibial fringe confined to a double or treble row posteriorly. All basitarsi are moderately long but other tarsal segments beadlike. The tarsi end in large, spatulate pulvilli, stout empodium, slender, sharp claws, bent strongly at the apex.

Wings: The marginal cell closed with a long stalk. The anterior branch of the third vein ends a little above the wing apex; the posterior branch ends far behind. Fourth posterior cell closed with a long stalk. Anal cell closed and stalked. Second basal cell closed, with three veins. Alula large, ambient vein complete. Wings often strongly tinged with brown or yellow.

Abdomen: The abdomen is moderately robust and rather elongate; it is slightly tapered on the apical half. Abdomen with six well developed tergites in the male, the seventh forms a narrow apical ring. Pile of abdomen dense, fine, suberect and moderately long and longer on the sides of the tergites. First tergite with 3 or 4 moderately strong bristles; each of the remaining tergites in the middle of the lateral margin bears 1 or 2 distinct, rather stout bristles, but none present on the sixth tergite. Male terminalia large, conspicuous, rotate about one-fourth to the right. End of gonopod tends to be long and spatulate.

Distribution: Oriental: *Pagidolaphria alternans* Wiedemann (1828); *annulifemur* Enderlein (1914); *chappuisiana* Enderlein (1914); *chrysorhiza* Hermann (1914); *chrysonota* Hermann (1914); *chrysotelus* Walker (1855); *constricta* Walker (1855); *dira* Walker (1855); *egregia* Wulp (1898); *flammipennis* Walker (1861); *gigas* Macquart (1838); *horrida* Walker (1855); *reinwardtii* Wiedemann (1828) [=*apicata* Walker (1849), *fervens* Walker (1855), *saeva* Walker (1855)]; *remota* Hermann (1914); *signatipes* Wulp (1872); *walkeri* Enderlein (1914).

Australian: *Pagidolaphria terminalis* Wulp (1872).

Genus *Lampria* Macquart

FIGURES 226, 612, 1237, 1246

Lampria Macquart, Diptères exotiques, vol. 1, pt. 2, p. 60, 1838. Type of genus: *Laphria clavipes* Fabricius, 1805. Designated by Coquillett, 1910, the second of 2 species.

Lampria has 1 subgenus, *Brychomyia*, new subgenus.

Small to medium size flies, separated from the more bare and short pilose species of *Laphria* Meigen and *Bombomima* Enderlein by the setigerous tubercles of the ventral surface on the hind femora. The species commonly have the mesonotal pile dense, flat appressed, with a matted appearance and sometimes brilliant gold and green or purple coloration. The members of the group appear to be somewhat diverse and ill assorted; the type of genus has very short, high, broad, greatly flattened eyes with enormously enlarged facets. Length 10 to 20 mm.

Head, lateral aspect: The head is quite short and high, the face moderately gibbous below, and slightly gibbous beneath the antenna with the intervening area concave. The occiput is short, a little more prominent below, especially towards the middle of the head and the eye is gradually and moderately recessive, beginning at the upper fourth. The occipital pile is fine and abundant ventrally, with slender bristles beginning at the upper third. In other species the head is of at least moderate length and relatively not as high and may also have a double gibbosity. Proboscis as in *Laphria*, elongate and strongly compressed laterally with punctured, rounded apex and some pile above and below. The base is not large but is a little swollen and bears a dense, lateral tuft of long pile. Palpus clearly of two segments, the second segment long, slender, cylindrical, with apical and lateral pile. The antenna is attached at the upper fifth of the head and is moderately elongate, especially upon the third segment. First 2 segments rather short and robust, the second segment shorter. The third segment is gradually widened to the outer fourth and then is gradually reduced to a blunt point, with a small dorsal pit and spine. First segment especially with some long, slender bristles and bristly hairs ventrally in the type of genus but shorter in other species.

Head, anterior aspect: The head is as wide as the thorax. In the type of genus the eye is strongly flattened anteriorly with greatly enlarged central facets; it is more convex in other species. The face ranges from about a sixth to a fourth the head width; it is thinly pollinose or partly bare, the lateral pile scaliform and flattened. Face with parallel sides. The ventral gibbosity has 2 ventral rows of 7 or 8 very long, sometimes wiry bristles extending nearly to the apex of the long proboscis. Lower slope of the gibbosity with considerable long, bristly pile, and similar pile beneath the antenna. Subepistomal area large, deeply concave and oblique. Front quite short, pollinose, with a row of slender bristles along the eye margin, the ocellarium either small with steep sides or broad and low, with a pair of small hairs or a pair of long bristles, besides some fine postocellar hair. Vertex rather deeply excavated, with slanting sides and only slightly wider than the face.

Thorax: The mesonotum is broad and low and gently convex. It is densely appressed pilose or sometimes with rather loose, but abundant flatly curled setae; the pile is almost undifferentiated except for 2 pairs of short, fine, postdorsocentral, bristly hairs. In the type of genus there are very fine dorsocentral bristles which continue throughout the entire length but acrostical elements are undifferentiated. The lateral bristles are weak and consist of 1 notopleural, 4 or 5 supraalar, 1 long, or 3 very short postalar and 3 pairs of very long, slender bristles on the scutellum; in some species scutellar bristles are absent. Scutellar disc with appressed pile. Mesopleuron with 1 or 2 long bristles and considerable scattered, fine, long pile in the type of genus or with only the dorsal border covered with matted, bright, curled pile. Propleuron with fine, bristly pile. Metapleuron with a vertical band of long bristles and fine pile. Metanotal callosity in the type of genus pollinose only. Postmetacoxal area membranous.

Legs: All of the femora, especially the hind pair quite stout. In the type of genus the hind femur is plane below and arched above; the ventral surface has a stout, basal, nonspinous tubercle and a smaller, distal, ventrolateral tubercle which bears stout, apical spines; there is a similar tubercle and bristle laterally and ventrally near the apex. Pile of hind femur short, setate and appressed dorsally with some long, fine, lateral hairs; anterior and middle femora with dense, conspicuous bands of bright colored, erect, long, bristly pile in the type of genus, but is much less prominent in other species. Hind tibia with several dorsal and lateral rows and a ventromedial row of 8 or 10 slender, long bristly hairs; these hairs become more numerous over the ventral surface. The first 4 tibia have a greatly exaggerated, very long, conspicuous, ventral fringe; middle pair with slender bristles and bristly hairs which are curved and twisted distally. Anterodorsal surface of the middle tibia with 8 long bristles. Claws moderately sharp, rather blunt on the hind pair; pulvilli and empodium large, the latter bladelike.

Wings: In the type of genus the anterior branch of the third vein is long and almost straight, bent shortly only after it arises. Fourth posterior cell closed with a long stalk. Lower end vein of the discal cell is long and drawn toward the base. Anal cell closed, alula large, ambient vein complete. Wings often tinged with brown.

Abdomen: The abdomen is robust but at the base not quite as wide as the mesonotum, or sometimes fully as wide. Sides of the abdomen are parallel, except at the apex or slightly narrowed at the end of the second segment. Pile dense, flat appressed, setate and subappressed, sometimes partly scalelike. In the type of genus bristles are present only on the first tergite. Males with six tergites and a very shortly exposed seventh tergite. Females with also a very shortly exposed seventh tergite. Male terminalia large and conspicuous, rotate one-half with deep, bowllike, inverted epandrium. Gonopod large, the cavity of the genitalia exposed. Females with the eighth tergite very short, the terminalia small and cylindrical.

Distribution: Nearctic: *Lampria bicolor* Wiedemann (1828) [=*antaea* Walker (1849), *megacera* Macquart (1834), *saniosa* Say (1829)]; *corallogaster* Bigot (1878); *rubriventris* Macquart (1834).

Neotropical: *Lampria aurifex* Osten Sacken (1887) [=*clavipes* Bellardi (1861) not Fabricius]; *bitincta* Walker (1860); *cilipes* Walker (1857); *circumdata* Bellardi (1861); *clavipes* Fabricius (1805); *dives* Wiedemann (1828); *fulgida* Schiner (1868); *macquartii* Perty (1833); *mexicana* Macquart (1847); *parvula* Bigot (1878); *pusilla* Macquart (1838); *scapularis* Bigot (1878); *spinipes* Fabricius (1805) [=*affinis* Fabricius (1805)]; *splendens* Macquart (1834); *tolmides* Walker (1849).

The species *Lampria splendens* Macquart (1834), from Surinam, described as a *Laphria* Meigen and placed by Kertész in *Maira* Schiner is almost without doubt a species of *Lampria* Macquart. Also *Maira claripennis* le Guillou (1842), from Triton Bay, described as a *Laphria*, and placed by Kertész in *Lampria* is in all probability a species of *Maira*. I am making this obvious geographical correction though I have not been able to examine the types. The genus *Lampria* is a well known Neotropical genus and the genus *Maira* is characteristically Oriental and Australian, containing many species. These two genera have in common the one superficial character of a brilliant metallic coloration.

Brychomyia, new subgenus

Type of subgenus: *Laphria rubriventris* Macquart, 1834.

This subgenus is distinguished from Neotropical members of *Lampria* Macquart by the presence of dense, short, bristly pile on the metanotal callosities, the dense pile on the upper corners of face, the absence of distinct bristles on the ocellar tubercle and the not metallic color. Anterior branch of third vein is strongly S-shaped. The species *Lampria bicolor* also belongs here.

Genus *Maira* Schiner

FIGURES 214, 611, 1241, 1250, 2147

Maira Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 673, 1866. Type of genus: *Laphria spectabilis* Guérin, 1830, by original designation.

Rather large, bare flies which are generally brilliant, metallic green or purple coloration and more rarely coppery. They are moderately robust and the proboscis is very long, comparatively slender, and strongly compressed laterally. The pleuron is densely pollinose. The first 4 femora are relatively slender or only slightly swollen. Hind femur strongly swollen, but entirely on the upper half, the ventral surface plane. The anterior branch of the third vein straight, ending approximately at the wing apex. Length 12 to 24 mm.

Head, lateral aspect: Head of moderate length, the eye rather short, high and flattened anteriorly. The occiput is developed only on the lower half; the eye is moderately recessive. Face with a low but distinct gibbosity on the ventral half, a smaller one beneath the antenna and concave between. The occipital pile is fine and moderately abundant; the dorsal bristles always slender and deeply placed and restricted to the upper third. The proboscis is unusually long, not very high but strongly compressed laterally and the punctured apex blunt. Palpus of two segments, the second cylindrical, with bristles on all sides and the apex. The antenna is attached at the upper fourth of the head, or higher, moderately long, the first segment nearly twice as long as the second, with at least 1 stout, long bristle and both segments with short, bristly pile both above and below. The third segment is a little wider than the second, sometimes attenuate on the basal half, widest beyond the middle and tapering rather rapidly to a blunt point.

Head, anterior aspect: The head is wide and a little wider than the thorax or at least as wide. The face is not quite one-fourth the head width, with parallel sides. The face is covered with fine, appressed pubescence and scaliform pile laterally; typically there are 3 to 5 pairs of very long, somewhat bent, wiry bristles placed in 2 vertical rows, among which there is a little fine, scattered pile and all of this pile or these bristles situated on the gibbosity of the face. Sometimes, instead, the whole gibbosity is densely beset with irregular, long, slender bristles; and possibly these two types are unrelated. Subepistomal area moderately large, concave, and oblique. Front and vertex distinctly divergent, the former very short, pollinose and like the face generally golden or silvery in color; the front has only a few, fine, slender, bristly hairs. The vertex is deeply excavated with sloping sides, the ocellarium low with a pair of very stout bristles.

Thorax: The mesonotum moderately high and convex, the greater part of it usually shining and often with conspicuous spots of bright pollen which are either on or behind the humerus. The abundant, fine, subappressed, setate pile, or the dense curled flat appressed pile is poorly differentiated. There may be a row of fine, scanty, never long or stout dorsocentral elements extending over the entire length of the thorax. Lateral bristles are generally stout and consist of 1 notopleural, 3 or 4 supraalar, 2 or 3 postalar and 1 to 3 scutellar pairs of bristles. The scutellum is convex, bare, metallic, with a few, fine, bristly hairs. Metanotal callosity pollinose only. Mesopleuron with a stout bristle and some bristly pile posteriorly and a little pile along the dorsal border. Propleural pile fine and rather scanty with a few slender bristles on the pronotum. The humerus has bristly pile. The prosternum is fused and continuous in a wide band. Metapleuron with a triangular patch of numerous, long, slender bristles and bristly pile. Pleuron rather uniformly pollinose. Metasternum pilose; postmetacoxal area membranous but generally greatly narrowed by medial extensions of the lateral sclerites. Upper sternopleuron with a tuft of pile and pteropleuron with some scattered hairs.

Legs: The legs are rather bare, shining and metallic; the pile is fine and appressed and setate dorsally and strongly reduced, especially on the tibiae. Ventral surfaces of all femora plane; bristles are few and slender and best developed on the middle tibia. Hind femur with a stout bristle laterally at the outer fifth, another above and dorsomedially, besides some slender bristly hairs dorsally and fine, erect, but scanty hair ventromedially, besides some slender, bristly hairs dorsally and fine, erect, but scanty hair ventromedially; the corresponding fringe of tibia is also scanty. Middle femur with stouter bristles, 1 posteriorly at the outer fifth, 1 anteroventrally at the outer fourth. Anterior femur with only some long, dorsal, bristly hairs and long, more slender hairs ventrally, similar to that found on the middle femur. Posterior tibia with 3 or 4 dorsal bristles; the strongest element is at the outer third and there is a single, distal, dorsolateral bristle and ventrolateral bristle near the apex. Middle tibia with 3 or 4 exceptionally strong, long, attenuate, anterodorsal bristles and a like number of equally long, posteroventral bristles; also there are slightly shorter posterodorsal bristles of 3 or 4 in a row, and a similar number of more slender, posterior bristles. On the anterior tibia there are 2 groups of rather close-set bristles anterodorsally near the apex, with 2 in each group, all of them long. The apical bristles are set rather far back from the apex. The anterior tibia is sometimes a little bent. Claws sharp, bent at the apex; pulvilli large; empodium bladelike.

Wings: The wings are hyaline or pale grey, or rarely banded; in some species the wings are rather dark blue-black or brown. The wing is elongate, the marginal cell stalk quite long. The anterior branch of the third vein is nearly straight, ending at the wing tip, the posterior branch ends far to the rear. First posterior cell slightly narrowed, the fourth posterior cell closed with a long stalk. The lower end vein of the discal cell is long and pulled towards the base. Alula large; ambient vein complete.

Abdomen: The abdomen is robust and often a little widened distally; it is shining and metallic with dense, fine, appressed pile and a few, scattered, fine, long hairs laterally. Generally at least four tergites have distinct, lateral bristles, usually stout, but sometimes slender. Males with seven tergites, the last well developed and prominent. Females with seven tergites, the seventh about a third to a half as long as the sixth. Eighth tergite short or long, conical and cylindrical and forming the base of the ovipositor. Male terminalia rotate one-half. The epandrium is long, shallow and bowllike, the gonopod prominent but narrow, the hypandrium is very short and concealed. Genital cavity widely open.

Female terminalia rather elongate and conical, convex above, the sternal piece narrow.

Distribution: Oriental: *Maira aenea* Fabricius (1805) [=*colorata* Boisduval (1835), *comes* Walker (1849), *consors* Walker (1859), *?cyanea* Macquart (1834), *?pellucida* Doleschall (1857)]; *albifacies* Wulp (1872); *aterrima* Hermann (1914); *aurifacies* Macquart (1848); *basifera* Walker (1861); *cambodgiensis* Bigot (1878); *elegans* Walker (1856); *gracilicornis* de Meijere (1914); *hispidella* Wulp (1872), *hispidella nigropilosa* de Meijere (1913); *lepida* Walker (1857); *longirostra* Bromley (1935); *nigrithorax* Wulp (1872); *nycthemera* Wulp (1872); *paria* Bigot (1878); *requisita* Walker (1860); *tuberculata* Wulp (1872).

Australian: *Maira appendiculata* Bezzi (1928); *auribarbis* Macquart (1848); *claripennis* le Guillou (1842); *compta* Walker (1861); *consurgens* Walker (1861); *elysiaca* Osten Sacken (1881); *germana* Walker (1859); *gloriosa* Walker (1859) [=*consobrina* Walker (1859), *kollari* Wulp (1872) not Doleschall, *socia* Walker (1859), *spectabilis* Schiner (1867) not Guérin]; *hirta* de Meijere (1913); *kollari* Doleschall (1857); *kubinyii* Doleschall (1857); *lauta* Wulp (1884); *limbidorsum* Bezzi (1928); *longicornis* de Meijere (1913); *nitida* Austen (1915); *niveifacies* Macquart (1849); *occulta* Wulp (1872); *pachycera* Bigot (1878); *paradisiaca* Walker (1859); *placens* Walker (1859); *smaragdina* Bigot (1878); *sodalis* Walker (1859); *spectabilis* Guérin (1830) [=*congrua* Walker (1861), *replens* Walker (1861), *splendida* Guérin (1830)]; *superba* de Meijere (1914); *tincta* de Meijere (1913); *tomentosa* Wulp (1872); *varians* Ricardo (1929); *villipes* Doleschall (1857); *waigiensis* Bigot (1878); *whitneyi* Curran (1936); *willowsi* Curran (1936); *wollastoni* de Meijere (1915).

See comment under *Lampria* Macquart.

Genus *Orthogonis* Hermann

FIGURES 232, 614, 1226, 1235, 2137, 2152

Orthogonis Hermann, Ent. Mitt., vol. 3, p. 132, 1914. Type of genus: *Laphria scapularis* Wiedemann, 1828, by original designation.

Rather large flies, characterized by greatly reduced pile, but strong, numerous bristles. The coloration, including the wings, is almost always black or purplish black. In a few species the wings are pale greyish hyaline, the abdomen sometimes steel blue; lateral tergal spots of white pollen may be present as well as white or yellow pollen on the thorax. These flies present a strong, general similarity in appearance to *Maira* Schiner but are unrelated, belonging instead to the Andrenosomini. The proboscis is cylindroid or subquadrate, slightly depressed dorsoventrally at the apex, the femora and tibiae much reduced in pile in contrast to *Maira* and they are especially characterized by the alignment of the end vein of the discal cell with the end vein of the fourth posterior cell, usually in an exact line, sometimes offset by less than half the length of the end vein of the discal cell. Length 18 to 25 mm.

Head, lateral aspect: The face is short on the upper half, gradually becoming protuberant, rounded and convex on the lower portion. The eye is of moderate length, anteroventrally recessive, sometimes shortened and always more narrow on the lower half; it may be sometimes reduced in length and strongly flattened anteriorly. Occiput obliterated on the upper half, its prominence below is due to the recession of the eye. Pile of the occiput scanty and fine and for the most part placed medial to the bristle row. Bristles in the type of genus extend almost to the bottom of the occiput with an additional clump behind the proboscis, or restricted to 6 stout pairs on the upper fourth of the occiput. Proboscis moderately long, extending well beyond the face and distinctly though only moderately compressed dorsoventrally towards the apex. Also it is only gently swollen or tapered towards the base, both in dorsal and lateral aspect; the apex is blunt with numerous, stiff hairs apically and immediately below, the only other pile being long, stiff hairs ventrally on the basal third. There is a moderately developed medial ridge present at the base which tapers down to end in the middle or on the outer third; there is a medial groove ventrally below. Palpus rather small, clearly of two segments, both cylindrical, the second with lateral, subapical pore and with apical lateral, dorsal and ventral bristles. The first segment is excavated and fused on the dorsal surface, except on the outer fifth, which is chitinized.

Head, anterior aspect: The face below antenna one-third the head width and divergent below. Subepistomal area large, oblique, concave and nearly plane with medial ridge and bare, except for dorsolateral pollen. Face pubescent, the gibbous portion bearing a medial, triangular patch of long, extremely stout bristles, 7 to 14 in number with additional scanty, stiff, bristly hairs which extend on to the upper half of the face. Antenna attached at the upper fourth of the head, or even higher. The first segment is a little longer than the second. The third segment is laterally compressed, usually nearly plane dorsally, gently widening below towards the middle and from the middle to the apex. In the middle it is 1½ times as high as the second segment, the apex without pit but thinned and with a distinct, dorsal, subapical spine which is set a very short distance back from the apex. First segment with a number of stiff bristles ventrally but laterally and dorsally only at the apex; second segment with longer, subapical bristles dorsally and ventrally; third segment with 1 or 2 setae dorsally. Front quite short, with 2 or 3 slender bristles laterally, or as few as 1 bristle. Vertex deeply excavated, the ocellarium quite large and high with steep sides and bearing 1 pair of very stout, long, divergent bristles sublaterally in the middle, and between the posterior ocelli 2 or 3 pairs of quite short, minute bristles. Anterior eye facets strongly enlarged.

Thorax: The thorax is pollinose. The pile of the mesonotum is scanty, appressed and bristly or setate, the setae sometimes nearly or quite erect, at least in part. Acrostical elements are undifferentiated; dorsocentral hairs or bristles become a little longer and differentiated before the suture but are not stout posteriorly. Humerus with stiff pile only. The long, stout, lateral bristles consist of 1 notopleural, 2 to 4 supraalar, 2 or 3 postalar, and 2 pairs of scutellar. Scutellum only moderately thick but convex, bare or pollinose, with scattered fine, short bristles. Propleuron with numerous, long, stiff hairs, the upper propleuron similar and without bristles except on the anterodorsal pronotum which has slender bristles; the pile is sometimes rather fine. Mesopleuron and upper sternopleuron with some scattered, short, stiff pile in the type of genus; the anterior mesopleuron may have similar pile or abundant, fine, long pile; the upper mesopleuron with a few, fine, stiff hairs and its bristles reduced to 2 or 3 exceptionally long, slender, stiff hairs which might possibly be regarded as bristles. In the type of genus is a quite stout, extremely long mesopleural bristle. Hypopleuron with fine, long pile; metapleruon with an irregular, vertical row of 8 or 10 long, stout, straight bristles or 12 to 15 long, fine bristles bent distally. Metanotal slopes micropubescent only; lateral and ventral metasternum with pile; postmetacoxal area membranous, the lateral wall only slightly encroaching on the ventral medial area. Prosternum not dissociated.

Legs: The femora are stout, at most very little swollen dorsally; in this respect it differs from *Maira* where the hind femur is distinctly swollen on its dorsal aspect and the lower margin is plane. This distinction has been checked by the examination of 18 species of *Maira* and 9 species of *Orthogonis*. The following complement of bristles is present in the type of genus: on the hind femur 1 stout, lateral bristle at both basal and distal third and distally with a corresponding bristle on the medial side; the dorsal pile is dense, appressed setate with a row of 10 fine, long, bristly hairs partly doubled; ventral pile very scanty, fine, erect, longer and doubled on the basal half. Hind tibia with 4 or 5 long, slender, dorsomedial bristles, 1 slender, dorsolateral near the base, and 2 exceptionally stout, long, dorsolateral bristles, 1 at the middle and 1 at the outer fourth, 1 distal ventrolateral bristle, and 2 or 3 slender, basal bristles. The ventral tibial surface has fine, scanty, medium long bristles and a brush of setae on the outer fifth. Middle femur with 1 very stout, long bristle anteriorly just beyond the middle, 1 shorter, stout bristle posteriorly near the apex. The middle tibia has quite long, oblique, basally stout, attenuate bristles consisting of 3 dorsal, 2 anterodorsal, 1 in the middle and 1 at the outer fourth, 1 anterior at the basal third, 4 posteroventral, the second and fourth elements stout, and 3 exceptionally stout ventral and 3 fine posterior bristles, all basal in position. Anterior femur with 1 stout, lateral apical and 1 posterodorsal at the outer third. The anterior tibial bristles are similar to the middle tibia but only the posterior elements are long; the dorsal surface has an irregular double row of 8 pairs; the posterior bristles are 3 in number; the ventral bristles are scarcely more than stiff hairs. Claws stout, moderately sharp; the pulvilli well developed; the empodium bladelike, basally swollen.

Wings: The marginal cell is closed, with a long stalk; anterior branch of the third vein ends just before the wing apex; the posterior branch ends far behind. The first posterior cell is always widely open. The lower end vein of the discal cell and of the closed and stalked fourth posterior cell are usually in exact line or offset by distinctly less than than the length of the remaining upper vein closing the discal cell. Anal cell closed and stalked; alula large, extending rather strongly outward and downward; ambient vein complete.

Abdomen: The abdomen is robust, convex, as wide as the mesonotum. Pile of the abdomen quite fine and short and scanty, though a little more abundant and longer laterally. First tergite with 4 very stout bristles, the remaining tergites with equally stout bristles, 2 pairs on the second tergite or on the second to fourth tergites or with only 1 beyond the second tergite, the sixth tergite with none. Males with 6 tergites, the seventh totally concealed; 6 well developed tergites in the female, the seventh and sometimes the eighth visible as a narrow, liplike extension beyond; rarely is the seventh tergite somewhat more extensive laterally. Male terminalia rather large and conspicuous, rotate one-half. There is a ventral, bowl-shaped epandrium in some instances; in others this structure is quite short ventrally. Female terminalia short, rather wide dorsally, with ventrally a pair of small, slender, bristle-bearing lobes.

Distribution: Ethiopian: *Orthogonis madagascarensis* Bromley (1942).

Oriental: *Orthogonis scapularis* Wiedemann (1828).

Genus *Smeryngolaphria* Hermann

Figures 269, 275, 620, 1310, 1319, 1610

Smeryngolaphria Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 226, 1912. Type of genus: *Laphria melanura* Wiedemann, 1828, by original designation.

Panamasilus Curran, Amer. Mus. Novitates, no. 425, p. 20, 1930. Type of genus: *Panamasilus xylota* Curran, 1930, by original designation.

Flies of rather elongate and comparatively slender abdomen; they are usually large and frequently pale in color. The genus is distinguished by the short, rather small proboscis is with cylindrical apex, the rather short pilosity on the thorax and abdomen. The anterior branch of the third vein is straight, the elongate hind femur is not or scarcely thickened, bears no tubercles, the metanotal callosity is not pilose and the abdominal tergites have strong bristles. It especially differs from other Laphriini genera in the absence of a ventral facial gibbosity. Length 25 to 35 mm.

Head, lateral aspect: The face is slightly to moderately produced and gently convex; the eye is short and narrowly recessive below. The occiput is completely obliterated on nearly the upper half of the head, narrowly visible below the middle and a little more prominent ventrally. Occipital pile short, stiff, scanty above and longer below; it bears a deeply submedial band of long, outwardly curved, slender bristles or bristly hairs. On the upper third of the occiput are 4 quite stout bristles and laterally behind the vertex 3 pairs of unusually long, stout, erect, straight bristles. The proboscis is rather short and stout, quite obtuse at the apex, basally swollen from either aspect and with a low medial ridge; the apex is smooth with a dorsal mat of anteriorly directed pile and along the outer ventral margin there is a fringe of stiff pile restricted to the apical third. The base below has some long, stiff hairs directed downward and at the basal third there are several additional, long hairs more or less appressed. Palpus clearly of two segments; the first segment is short, swollen and rounded with a narrow dorsal fissure; the second is a little swollen distally and bears a distinct lateral, subapical pore; the palpus bears a number of stiff bristles apically and dorsally and more slender elements below and laterally.

Antenna attached at the upper sixth of the head and elongate; the first segment is twice as long as the second, the second barely longer than its apical width. The third segment is quite long and laterally compressed; it is as long as the proboscis and not quite three times as long as the first two segments combined. At its apex it bears a narrow, apically rounded, flattened, apparent microsegment which is rather short and carries a dorsal recessed notch in which is a distinct spine. Pile of first segment composed of a few, stiff setae dorsally, 2 rather stout, long bristles in the middle ventrally and a number of other long, stiff hairs ventrally and laterally. Second segment with a complete subapical circlet of long, stiff setae.

Head, anterior aspect: The face below the antenna is about one-fourth the head width and has parallel sides; subepistomal area large, elongate, plane, bare and oblique. Face micropubescent with a dense mat of subappressed, stiff, bristly pile beginning beneath the antenna, the more central portion is medially composed of rather flattened hair. Above the epistomal margin there is a single row of stout bristles composed of 7 or 8 pairs. Only the upper half of the lateral subepistomal margins bear bristles or pile. The front is quite short, with a few setae along the eye margin; the front and vertex slightly divergent, the latter moderately excavated, the ocellarium large and high and rounded on top with a pair of strong, divergent bristles and 1 or 2 short, weak hairs. Eyes enlarged centrally.

Thorax: The mesonotum is pollinose; the pile is fine, abundant, flat appressed and setate. Acrostical and dorsocentral elements are not clearly differentiated but the prescutellar pile is longer but rather strongly appressed. Lateral margins also with longer and appressed, stiff, bristly pile. Humerus with erect pile. The lateral bristles consist of 1 to 3 weak posthumeral, 1 long, stout and 1 or 2 weak notopleural, 2 long, strong, supraalar, 3 similar postalar, and 3 pairs of long, stout scutellar bristles. Scutellar disc thick, convex, pollinose, without crease and with a dense mat of posteriorly directed, stiff, appressed pile on the outer half. Propleuron ventrally with numerous, moderately stout bristles and some stiff pile. Pronotum with 5 or 6 weak bristles. Upper mesopleuron with a fringe of long pile. Posterior corner of mesopleuron with 5 or 6 exceptionally stout, long bristles. Sternopleuron with a few fine hairs; posthypopleuron with only short, scattered pile, the metapleuron with a wide, vertical band of 10 to 12 very long, stout bristles and bristly pile. Pteropleuron with scattered, fine pile. Metanotal slopes micropubescent only; without pile or bristles. Metasternal slopes and the metasternum with long pile; postmetacoxal area membranous but distinctly narrowed in the middle on each side; prosternum wide laterally and not dissociated; tegula with numerous setae.

Legs: All of femora are stout; the middle pair is least thickened. Hind femur slightly arcuate below; it bears dorsally 7 or 8 slender, bristly hairs and laterally 4 sharp, basally stout bristles, with a medial row of 8 to 10 slender bristles but none at the apex. The pile is short, suberect and setate, more strongly matted and appressed laterally and dorsally toward the apex. Ventrally there are only sparse, moderately short, fine, scattered hairs; the corresponding ventral fringe of the tibia is similar and scanty. Tibia rather thickened distally with very little pile and bearing 4 or 5 very slender dorsomedial, 3 tuberculate dorsal, and 5 or 6 tuberculate lateral bristles, the latter moderately stout. At the apex narrowly below there is a dense tuft of moderately long, appressed pile. The first 3 tarsal segments have similar mat. Medial apex of this tibia with 5 bristles. Middle femur with a stout, subapical posterior, a weaker bristle before and after it and also near it a moderately stout anterior bristle placed at the apical third. It has a few, fine, long hairs ventrally. Middle tibia with 5 short dorsal, 2 quite long, stout and 2 rather fine, short anterior bristles and 7 moderately stout posterior bristles, besides 7 long, stout ventral elements. Anterior femur and tibia similar but no femoral bristles present. The tibial bristles are similar, the long anterior elements absent, the ventral bristles fewer and weaker. Tarsi end in large, spatulate pulvilli, stout empodium, and quite slender claws.

Wings: Marginal cell closed with a long stalk; the anterior branch of the third vein is sinuous, ending well above wing apex; the posterior branch ends far behind. First posterior cell slightly narrowed apically; fourth posterior cell closed and stalked; lower end vein of discal cell pulled backward, nearly parallel with the wing margin. Anal cell closed and stalked; second basal cell ends in 3 veins; alula large; ambient vein complete.

Abdomen: The abdomen is moderately robust but not as wide as the mesonotum, the sides parallel. Males with 6 tergites and a short, liplike seventh. The pile is fine, and appressed and rather matted along the posterior margins. First tergite with 2 or 3 stout bristles; second with 2 distinct, stout bristles laterally; third and fourth with 2 or 3 and none upon the fifth and sixth. Abdomen considerably shorter than the wings. The male terminalia, moderately conspicuous and protruding but not large, are partly rotate and are of the open type. The lateral gonopod does not enclose the cavity along the true ventral aspect as it does in related Laphriini genera. Also the bowl of the epandrium is more shallow and has a narrow, medial fissure-like line. Gonopod apically with three slender, toothed prongs or processes. Hypandrium small, short and fused to the gonopod.

Distribution: Nearctic: *Smeryngolaphria stygia* Bromley (1931).

Neotropical: *Smeryngolaphria maculipennis* Macquart (1846) [=*aurata* Enderlein (1914), *pictipennis* Hermann (1912)]; *melanura* Wiedemann (1828); *xylota* Curran (1930) [=*panamensis* Curran (1942)].

Ethiopian: *Smeryngolaphria pallida* Bromley (1935).

Genus *Ichneumolaphria* Carrera

Ichneumolaphria Carrera, Arq. Mus. Nac. Rio de Janeiro, vol. 41, p. 115, 1951. Type of genus: *Ichneumolaphria zikani* Carrera, 1951, by original designation.

The following is Carrera's description in translation:

Head wide, a little more than two times the size of the eye. Vertex deeply excavated and wider and toward the front reduced on account of the proximity of the ocellar callosity to the base of the antenna. Ocellar callosity with a pair of bristles. The antennae are attached over a large pilose salience. First segment cylindrical and almost five times the length of the second segment that is more or less quadrangular. Third segment compressed in the sides with the shape of a strip (*tiro*), very long and almost four times the combined length of the first two segments. Face inclined backward, with pile on the callosity which bears the antenna, on the ocular margins and in the buccal border. Proboscis compressed laterally, fine and long. Palpus small. Thorax more narrow than the head; prosternum fused to the propleuron, practically without bristles. There is only one presutural bristle and others on the posterior margin of mesopleuron are very fragile; metapleuron with long pile. Scutellum without bristles but with short, marginal pile; lateral callosity of postscutellum bare.

Legs: Anterior femur and the middle femur normal, the posterior femur clavate. The tibiae are straight, the posterior tibia slightly curved toward the base. Basitarsus of anterior and middle legs as long as the three following segments; basitarsus of hind leg as long as all remaining segments. Claws small, pulvilli as long as the claws. Wings large and longer than the abdomen. The first and fourth posterior cells and anal cell are all closed and bear a long petiole. Fourth posterior cell sharp at apex. Alula small. Abdomen not coarctate. Lateral bristles present only on the first segment. Genitalia of female conical.

Distribution: Neotropical: *Ichneumolaphria zikani* Carrera (1951).

Genus *Alipiolaphria* Carrera

Alipiolaphria Carrera, Arq. Mus. Nac. Rio de Janeiro, vol. 41, p. 116, 1951. Type of genus: *Alipiolaphria mirandai* Carrera, 1951, by original designation.

The following is Carrera's description in translation:

Head more narrow than the thorax, and approximately as large as one and one-half times its own height. Front short, with long bristles along the ocular margins; ocellar callosity with long bristles. Face salient from the base of the antenna to the buccal border and covered with long bristles on the whole extent. Face as wide as three-fourths the width of one eye, its sides almost parallel. Proboscis small, not of great length laterally, more or less cylindrical and with a small dorsal ridge present. Palpus one-third the length of the proboscis; second segment fusiform. Antenna situated near the top of the head and at the upper fourth of the eye when considered in profile; the first segment is two times the length of the second segment; the third segment is fusiform and is as long as the two basal segments united; the first two segments bear dense pile.

Thorax: The pronotum and propleuron with long pile; propleuron connected to pronotum. Mesonotum with short pile; lateral and dorsocentral bristles are developed posteriorly. Scutellum with four pairs of marginal bristles. The lateral callosity in the region of the postscutellum is without hair; the pleuron has bristles in the posterior margin of the mesopleuron and metapleuron. Legs: Femora of normal thickness; tibiae straight and a little smaller than the femora; tarsi a little larger than the tibiae. Bristles of legs small and thick; pile short; claws sharp, pulvilli large, empodium developed. The wings are a little larger than the abdomen. The first posterior cell is open; fourth posterior cell and anal cell closed and stalked. The anterior crossvein is situated a little past the middle of the discal cell. Abdomen as large as the thorax, with parallel sides; lateral bristles present. Genitalia small and subventral.

Distribution: Neotropical: *Alipiolaphria mirandai* Carrera (1951).

Genus *Anisosis* Hermann

FIGURES 246, 609, 1257, 1266, 2112, 2160

Anisosis Hermann, Ent. Mitt., vol. 3, p. 130, 1914. Type of genus: *Laphria phalaris* Osten Sacken, 1882, by original designation.

Rather large, slender flies; the thorax elongate and slender and the abdomen as wide as the mesonotum. Though partly dark in color, they tend to be largely brownish yellow, especially on the face, antenna, legs, wings and on parts of the thorax and abdomen. They are covered often with considerable golden pollen. Wings frequently tipped or margined with blackish. The elongate, oval, third antennal segment has a minute, visible spine from the apical tip. The bristles are generally weak but the abdominal tergites have conspicuous lateral bristles and metanotal pile or bristles are absent. Length 18 to 22 mm.

Head, lateral aspect: The face is short dorsally, gradually becoming a little more produced on the lower portion. While the lower face is rather prominent most of it is due to the recession of the eye. It is gently convex and retreating below. The eye is strongly recessive anteroventrally beginning at the upper third. The occiput on the upper third is obliterated, the exposed part due entirely to the recession of the eye. Pile of occiput dense, stiff, bristly and rather long on the ventral third. Extending from the middle to the vertex, the pile is almost wholly replaced by stout bristles, of which there are at least 12 on each side, all arising rather far from the eye margin. Proboscis directed forward and considerably longer than the face; it is rather strongly swollen laterally at the base; it has an oblique ridge reaching from above to the middle of the ventral margin and the base is gently swollen and convex. There is a rather high, thin, dorsal, medial ridge beginning at the base and ending abruptly a short distance from the apex. Apex obtusely rounded, with numerous, short, stiff bristles; the swollen, ventral, basal half bears numerous, long, slender bristles. Palpus clearly of two segments; the first, short and excavated and medially fused, bears dense, long, bristly pile below; the second, cylindrical and robust and twice as long as the first, bears numerous slender bristles dorsally, ventrally at the apex, and laterally on the basal half. Antenna attached at the upper fifth of the head; the first segment is nearly three times as long as the second and distinctly robust, with 2 or 3 moderately long, stout bristles ventrally; on both segments are additional, short, slender bristles ventrally, laterally, and dorsally. Third segment broadly oval, strongly convex below and widest in the middle; it is 1½ times the combined length of the first two segments, with an apical pit which contains a short visible spine.

Head, anterior aspect: The face below the antenna is about one-third the head width and slightly divergent below. The pile of the face is short and bristly on the dorsal half, becoming longer in the middle; there are several rows of exceptionally long, basally stout bristles on the lower portion of the face, and these are continued down the upper half of the lateral subepistomal margin. Front short and pollinose, with a stout bristle on each side opposite the antenna and with at most 1 or 2 fine, short, bristly hairs above and along the eye margins. Ocellarium large and high, bluntly conical, with rather strongly sloping sides and bearing across the middle a pair of long, stout, divergent bristles and both laterally and between the posterior ocelli a pair of short, stiff hairs.

Thorax: The thorax is densely pollinose; for the most part dark on the pleuron but mostly pale on the mesonotum. There is a band of rather short, fine, reddish, subappressed acrostical setae disposed in 3 or more rows which are separated by a narrow, bare stripe from a band of slightly longer dorsocentral elements. The dorsocentral bristles become only slightly longer and stouter posteriorly. Humerus long pilose. Lateral bristles are rather long and stout and light reddish brown and consist of 2 notopleural, 3 supraalar placed before and above the wing, 3 postalar, and 3 pairs of bristles on the scutellum. The disc has some fairly long, suberect, reddish pile. Metanotal slopes micropubescent only. Upper posterior slopes of mesopleuron with 3 quite long, reddish bristles, the more dorsal ones quite stout, and with about 12 stiff, reddish hairs which are half as long as the bristles. Pronotum with 7 to 10 pairs of stout, reddish bristles. Metapleuron with exceptionally long, slender, brownish yellow bristles, 3 or 4 in number, curved downward at the apex with some 8 or 10 more slender, reddish hairs not quite as long and not curved. Hypopleuron with 8 or 10 hairs; pteropleuron pubescent only. Metasternum with long, fine pile laterally throughout its length; ventral metasternum with a low, medial elevation and a few fine, bristly hairs; postmetacoxal area membranous but the lateral margins of the metasternum strongly encroach, leaving only about one-fourth of the postmetacoxal area membranous; tegula with setae.

Legs: Hind femora distinctly elongate, gradually thickened from the base until on the outer third it is nearly twice the basal thickness. It is densely, fine appressed pilose with weak bristles consisting of 3 lateral, 1 dorsomedial subapical, and 1 lateral bristle rather close to the apex, and 4 long, quite slender pairs of reddish dorsal bristles. Ventrally this femur has a sparse fringe of fine, long, erect pile growing a little longer medially and 4 weak, slender, medial bristles. Tibia slender, with weak bristles consisting of a double row of 3 long, oblique, dorsal elements; it also has a fringe of long, sparse, ventral and lateral pile; medial surface with a golden mat of setae on the apical fourth. Middle femur with, just beyond the middle, 1 rather stout, reddish, anterior bristle, and at the apical sixth 1 posterodorsal, the ventral and posterior margins with some rather long, fine hairs, and the posterior margin at the base with 1 bristle. Middle tibia with a quite long fringe of slender, bristly pile on the ventral, anteroventral and posteroventral surfaces; these fringes contain some 20 or more elements in each row of varying thickness. Anterior femur with a basal, posterior bristle which may be doubled and another on the apical fifth, besides 1 anteriorly quite close to the apex. The anterior tibia is like the middle tibia with extremely long, nearly erect, fine reddish golden pile on the same surfaces, and posteriorly with 13 or 14 slender, very long, reddish bristles. The apex anteriorly has 1 quite long, slender bristle. Claws sharp and strongly bent at the apex; the pulvilli three-fourths as long as claw; empodium long and bladelike.

Wings: The subcostal cell is quite narrow. Marginal cell closed with a long stalk. Anterior branch of the third vein nearly but not quite straight; it has a quite shallow sigmoid curve intermediate between the straight vein found in *Pagidolaphria* Hermann and the strong sigmoid vein found in *Laphria* Meigen or *Alipiolaphria* Carrera. First posterior cell widely open. The posterior cross vein is long and drawn backward and lies parallel to the posterior wing margin. Anal cell closed with a long stalk. Alula large, ambient vein complete.

Abdomen: The abdomen tends to be slightly wider posteriorly; the first tergite is at least three-fourths as long as the second, gradually swollen in the middle or widened so that it is laterally convex and distinctly wider than the second tergite. All the tergites laterally have moderately long tufts of fine, erect, yellow pile which is a little shorter posteriorly and each tergite bears laterally in the middle a strong, conspicuous, somewhat curved, reddish bristle; there are 4 on the first tergite, 3 on the second and third, and 2 on the fourth and fifth tergites. In the males there are six tergites only, the sixth is two-thirds to three-fifths as long as the fifth and there may be a short, protruding edge of the seventh tergite barely visible dorsally. In the females there are eight tergites, the seventh and eighth considerably narrowed; the seventh is one-fourth as long as the sixth or shorter, the eighth, however, is approximately three-fourths as long as the sixth. The male terminalia are quite large, conspicuous, elongate and rotate. The ventrally placed epandrium is bulbous and swollen basally. Female terminalia are minute, divided below, undivided above.

Distribution: Oriental: *Anisosis auripes* Bromley (1930); *phalaris* Osten Sacken (1882); *producta* Walker (1857).

Genus *Dassylina* Bromley

Figures 252, 615, 1220, 1229, 1581, 1608, 2136, 2166

Dassylina Bromley, Rev. Zool. Bot. Africaines, vol. 26, p. 412, 1935. Type of genus: *Dassylina fulvithorax* Bromley, 1935, by original designation.

Large, broad, robust flies, which suggest *Laphria* Meigen or *Hyperechia* Schiner in appearance. Third antennal segment about three times the combined length of the first two segments and broadly and gently rounded below. They appear to be related to *Storthyngomerus* Hermann or *Rhopalogaster* Macquart; from the former they are separated by the much shorter third antennal segment and only slightly concave face. From *Rhopalogaster* they differ in the rather short first antennal segment. Length 30 mm.

Head, lateral aspect: The head is of moderate length, the face is moderately produced forward and convex but this gibbosity of the face begins a short distance below the antenna, at approximately the upper third of the face at which point there is a transverse depression from eye to eye. The occiput is thick and prominent below due to the anterior recession of the eyes; it bears dense, long pile throughout but is without well developed bristles. Proboscis directed straight forward, of moderate length, distinctly flattened or compressed laterally with a subtruncate, pilose apex, unswollen base but with long, abundant, ventral, basal, black bristles. Palpus of two segments, distinctly cylindrical, with numerous, long, black, bristly hairs. Antenna elongate, the first segment 2½ times as long as the minute second segment and with abundant, dorsal pile and several, longer hairs ventrally; the dorsal pile is black, the ventral pile yellow. Second antennal segment with 3 minute, black hairs dorsally and 1 long and 2 short, black hairs below. The third antennal segment is about three times as long as the first two segments combined; it is flattened laterally with nearly straight or plane dorsal margin but with gently rounded, ventral margin which is widest near the middle leaving the segment more narrow basally and attenuate and gently pointed towards the apex. Apex with a minute, lateral pore which seems to contain no spine.

Head, anterior aspect: The head is rather wide; the face below antenna is barely more than one-fourth the width of the head and is slightly wider below. It is pollinose above, bare and shining below with dense pile below the antenna and abundant, but more sparse pile below. There are 7 or 8 moderately long, bristly hairs on either side of the upper part of the facial gibbosity and on the lower portion more numerous and still longer bristles so that the pile and bristles below present a rather matted appearance. Ocellar tubercle low and inconspicuous with a pair of rather long, stout, bristly hairs together with 6 or 8 shorter hairs.

Thorax: The mesonotum shallowly convex and densely short, appressed pilose over the entire surface; the pile becomes much longer but also appressed around the posterior and lateral margins. Notopleuron with 3 bristly hairs, supraalar region with 9 or 10 such bristles and among the numerous postalar hairs perhaps 8 to 10 are thickened and bristlelike. Scutellum with considerable, suberect, discal pile and the margin with a long, dense, copious fringe; bristles absent. All this pile is pale brownish cream color. The humerus is covered with dense, rather long, bushy, black pile. Prosternum and propleuron fused; the pronotum bears numerous, long, black hairs. Metapleuron strongly convex with a wide, oval tuft of long, stiff, yellow hairs. Sides of metanotum without pile.

Legs: The hind femur moderately thickened, stout, with abundant, long pile above and below and shorter pile laterally; near the outer fourth is a single, moderately stout, pale yellow bristle laterally. Hind tibia rather stout and strongly thickened; it is slightly arcuate with abundant, long pile from all sides, which is bright fox-red dorsally and laterally and black below and medially. Anterior and middle femora with similar, long, bushy pile. Middle tibia with, in addition to the long pile, a row of 7 or 8 quite long, stiff, black bristles placed anteriorly and slightly curved inward. Anterior tibia apparently with only long, abundant pile, chiefly black with some yellow hairs posteriorly on the basal half.

Wings: The marginal cell closed with a moderately long stalk. First posterior cell open in full width but the cell is more narrow than the second posterior cell. Fourth posterior cell closed with a short stalk. End of discal cell remote from the end of fourth posterior cell.

Abdomen: The abdomen is broad and rather flattened, especially toward the base with rather short, flat appressed pile which becomes a little longer and more abundant on the last three tergites. In the female six segments are visible from above; the seventh is quite short and entirely covered by the sixth except for a small, lateral corner below. Female terminalia unusually elongate, quite slender and strongly compressed from the dorsal aspect but high, or with considerable depth from a lateral view; ventrally it bears a fringe of quite stout, long bristles; lateral surface of dorsal element with fine, scattered hairs and this element undivided dorsally. No males seen.

Distribution: Ethiopian: *Dassylina fulvithorax* Bromley (1935).

Genus *Pholidotus* Hermann

Figures 268, 616, 618, 1225, 1234, 1305, 2148, 2154, 2155

Pholidotus Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 229, 1912. Type of genus: *Pholidotus rubriventris* Hermann, 1912, by original designation.

Rather large, quite robust flies with the abdomen broad, as wide as the thorax, short and rather flattened. The pile is flat appressed and short, especially on the abdomen and they are distinguished from other groups with the long, knifelike, greatly compressed proboscis, by the dense bright scales on the face, which are not confined to the eye margins. The anterior branch of the third vein is nearly or quite straight; the mesonotal callosity has no pile or bristles; the first posterior cell is open and hind femur stout but not swollen. Length 16 to 20 mm.

Head, lateral aspect: Face moderately produced, more prominent on the lower half where it is slightly gibbous but retreating below and gently swollen in the middle. The eye is short, slightly narrowed ventrally from the posterior aspect, plane through the middle third, strongly convex and recessive below. The pile is abundant but delicate and rather long on the ventral half, shorter and scanty in the middle and dorsally where it is a little longer. Bristles begin in the middle, are distinct but rather weak, black, short and slightly curved; there are 10 pairs and they end before the medial corner of the eye. The occiput is quite short, barely visible in the middle, slightly more prominent below; from the dorsal aspect the vertex is strongly excavated posterolaterally. Proboscis exceptionally long, directed forward and unusually thin or laterally compressed and knifelike. From the dorsal aspect it is rather abruptly swollen only at the immediate base, the same is true from the lateral aspect, where it is swollen only ventrally; the whole outer portion has parallel sides, there is no medial ridge and the apex is quite obtusely rounded and almost truncate, with a few minute hairs apically and especially below. Base ventrally with a few fine, rather short hairs. Palpus slender, cylindrical, the first segment rather wide, flattened, excavated and fused medially; the second segment and the first bear fine, ventral pile; the second segment has 2 long, slender bristles at the apex.

Antenna attached at the upper fourth of the head; it is elongate and slender, longer than the head; the first segment is robust and a little longer than the second; the second is longer than wide. Third segment about 2 or 2⅓ times the combined length of the first two. Along the middle it is barely wider than the second segment and is very slightly narrowed distally; apex with a small, dorsal, exposed, characteristic spine, and no pit.

Head, anterior aspect: The head width is a little less than twice the height. The width of the face below the antenna is less than a third the head width; face with parallel sides. The subepistomal area is moderately large, concave, slightly oblique and bare. Face with scanty pollen and for the most part shiny; the lateral third on the upper half and the whole lower lateral margin more narrowly is densely covered with broad, silvery scales. Epistomal margin with a pair of long, slender, black bristles curved downward and beneath them a pair of shorter, white bristles and 2 other similar ones along the upper, lateral, epistomal margin. The front is quite short; the middle half is set off by a shallow, lateral crease or fascia. The steep lateral portion of the front bears a number of fine, delicate hairs next to the eye but no bristles. Vertex rather deeply excavated, with steeply oblique sides. The ocellarium is set rather far behind the anterior margin of the eye, it is large, triangular and moderately high, bearing rather flat ocelli and over the middle 4 or 5 pairs of rather short, slender, bristly, pale hairs. Anterior eye facets very strongly enlarged; central part of eye quite flat.

Thorax: The thorax is everywhere pollinose, slightly more convex anteriorly. The pile on the mesonotum is short, fine, scanty, bristly and suberect with a row of equally short, acrostical pile and with dorsocentral pile not differentiated anteriorly and poorly behind the suture where there are 4 or 5 delicate, slightly longer hairs. Humerus with moderately long, bristly pile. The rather short, comparatively weak lateral bristles consist of 1 notopleural with 2 shorter, weaker elements, of which 1 is posthumeral, 3 supraalar, 1 postalar and no scutellar bristles. The scutellum is convex, moderately thick, pollinose, the margin with 3 pairs of slender, bristly hairs, the disc with a few minute hairs, the base with a shallow crease. The propleuron has abundant, fine, long pile; pronotum with bristly pile only. The posterolateral pronotum has long, fine pile only. The dorsal pronotum and the ventral prosternum, the latter dissociated and widely divided by membrane in the middle below, both appear to be unusually convexly protuberant. Mesopleuron with abundant, long, fine pile on nearly the whole surface and with a single, distinct, moderately stout bristle on the posterior border at the upper third. The sternopleuron seems to be without pile except anteriorly; pteropleuron apilose; the hypopleura has considerable fine pile posteriorly. Metapleuron strongly convex with a wide band of long, bristly pile; true bristles absent. Lateral slopes of the metanotum pollinose only; nearly the whole surface of the lateral metasternum and the comparatively wide chitinized ventral metasternum bear abundant, long, fine pile. Postmetacoxal area distinctly membranous, although the lateral metasternum encroaches to some extent anteriorly; tegula with setae. Prosternum not dissociated.

Legs: All the legs are stout; the anterior and posterior pairs are a little more thickened than the middle femora; the thickening is spread over the middle of the anterior femur and chiefly beyond the middle on the hind femur but nowhere conspicuous. Hind femur with a few, fine, suberect hairs dorsally and dorsolaterally. Bristles are comparatively few, mostly short and quite weak, occasionally longer but always finely attenuate apically. On the hind femur the bristles consist of 8 to 10 pale, dorsolateral, the distal ones rising until they are almost dorsal in position and ending at the outer fourth of the femora, the dorsal setae beyond this point rather dense, stout and appressed and oblique; ventrolateral surface and the ventral surface with only a few, rather short, bristly hairs. Hind tibia with quite short, bristly hairs only, bristles absent; ventral surface with on the outer fourth a brush of setae that medially occupies the distal half. Middle femur with short, bristly pile anteriorly and posteriorly, its tibia with a conspicuous anterodorsal row of 7 long, pale bristles, the first 2 short, and with 5 short, posterodorsal, bristly hairs, 4 slender, posteroventral bristles, and 1 rather stout ventrodistal bristle. The anterior femur is like the middle pair; its tibia has 6 or 7 short but stout, sharp, anterodorsal bristles confined to the basal half and with only ventral hairs and with 4 longer, posteroventral, slender, bristles or bristly hairs. Apex without spine. All of the tarsi comparatively short, especially the intermediate segments. Anterior basitarsus as long as the next three segments; hind tarus likewise. Claws sharp, strongly curved apically with well developed but exceptionally wide, nearly quadrate pulvilli; the empodium is as long as the claw and bladelike.

Wings: The marginal cell closed with a rather long stalk; the anterior branch of the third vein is nearly or quite straight and ends at the wing apex or barely above it; the posterior branch ends considerably to the rear. First posterior cell open in maximal width, fourth posterior cell closed, with moderately long stalk, gently convex anteriorly and distally; the anal cell is closed with a long stalk, the middle end vein of the second basal cell is a third as long as the upper vein; the anterior crossvein enters the discal cell at the basal fourth; the alula is wide, not distally produced; the ambient vein complete.

Abdomen: The abdomen is short and robust, as wide as the thorax and three-fourths as long as the wing; the sides are parallel to the end of the fourth segment, considerably narrowed beyond. There are eight segments in the female, both the last two segments short; the seventh segment is almost completely concealed beneath the sixth being less than one-tenth as long as the sixth; the eighth is a little longer and more narrow and less than one-third as long as the sixth. Ninth segment short, divided completely in the middle and conical or subtriangular, without any ventral process. The ventral space is enclosed by 5 pairs of long, rather stout bristles which extend far beyond the terminalia. Pile of the abdomen abundant but quite short, flat appressed and setate. Abdomen chiefly shining, often with posterolateral triangles of pollen. These asilids probably mimic certain wasps. In the material before me the last two tergites are red. First sternite apilose.

Distribution: Neotropical: *Pholidotus anceps* Hermann (1912); *rubriventris* Hermann (1912); *ruficaudis* Hermann (1912).

Genus *Storthyngomerus* Hermann

Figures 253, 617, 1218, 1227, 1572, 2114, 2141

Storthyngomerus Hermann, Deutsche Ent. Zeitschr., 1919, p. 337, 1919. Type of genus: *Dasypogon tridentatus* Fabricius, 1805, by original designation.

Nusina Curran, Amer. Mus. Novitates, no. 272, p. 7, 1927. Type of genus: *Laphria dymes* Walker, 1855, by original designation.

Medium size flies of short, robust form and exceptionally short, minute, appressed pile. The dorsally dilated hind femur has 4 or 5 tuberculate spines. The face is deeply concave across the middle and the third antennal segment is exceptionally and conspicuously long. Length 12 to 17 mm.

Head, lateral aspect: The head is comparatively long, partly due to the strongly protuberant face and the very greatly thickened ventral occiput. The upper occiput is only shortly visible, the lower portion not only more swollen but more prominent because of the marked recession of the eye. The ventral occipital pile is fine and abundant, becomes slender and bristly in character; across the middle this bristly pile is dense and extends deeply inward along the upper eye corners where it is submarginal. There is a row of 8 to 10 stout bristles grading off below into the finer elements; also another group of 5 or 6 bristles perhaps a little more slender situated medially behind the vertex. The upper face is protuberant, forming a sort of antennal process, the middle of the face is nearly but not quite plane with the eye and there is a prominent, rounded, protuberant elevation on the lower half of the face which retreats below, leaving the central face deeply concave. Proboscis long, extended far beyond the face with blunt, more or less transverse apex and the whole structure greatly compressed laterally; it is punctate at apex with fine, ventral hairs, the only other hairs lie on the short, swollen base. Palpus small, cylindrical, clearly of two segments; the first segment is excavated, the second with 6 or 7 stout, apical bristles and some central, fine pile. The antenna is attached at the upper third of the head and is set on an anterior protuberance of front and face. The first segment is more than twice as long as the second, the second is barely longer than high. The third segment is more than four times as long as the combined length of the first two segments; it is slender, of nearly uniform width, with a minute pit at apex.

Head, anterior aspect: The head is nearly twice as wide as high. The face below the antenna is less than a fourth the head width, with nearly parallel sides and only slightly widened at the level of the cheeks. The upper face is thinly pollinose, the middle and gibbosity bare. There is an oblique row of slender bristles on each side of the upper half of the face extending to the antennal base. The lateral margins have a narrow band of silvery scales or flattened pile. On the gibbosity, widely separated, is a vertical row of 7 long bristles, some of them stout, besides between these rows above the epistoma, a patch of shorter, bristly pile. Subepistoma long and oblique. Front short, with a tranverse band of pubescence, a sublateral groove continued on to the vertex and along the eye margins a patch of slender bristles and bristly hairs. The front is deeply excavated, with steep sides; the ocellarium is small, with a few short hairs behind the ocelli and a single pair of long bristles between the ocelli. Sides of the vertex opposite the ocelli with a dense patch of coarse pile. Postvertex widened and flared only to a moderate extent.

Thorax: The mesonotum is comparatively low and densely covered with minute, flat appressed, curled setae. Humerus with many long, stiff, erect, bristly hairs anteriorly and appressed setae behind. The lateral mesonotal bristles are few, rather weak and not very long. The complement contains 1 notopleural, 1 supraalar, 1 or 2 very short postalar and along the scutellar margin 2 or 3 pairs of still shorter bristles little more than setae. Scutellum large, gently convex densely appressed setate like the mesonotum. Posteriorly in the dorsocentral row there are a few, fine more or less erect short hairs. Pronotum with 7 or 8 pairs of stout bristles and other pile. Remainder of prothorax with stiff, bristly hairs more abundant on the cervical sclerite. More than the posterior half and the dorsal portion of the mesopleuron with erect, long, bristly hairs. The posterior corner of the mesopleuron with 1 long, stout bristle. A few fine hairs on the pteropleuron, the metapleuron with a broad band of about 25 bristles, all rather stout. Metanotal callosity pollinose only. Postmetacoxal area membranous but narrowed by the medial extension of the lateral chitin. Prosternum widely fused laterally.

Legs: All the femora are swollen, the hind femur especially, but its lower surface is plane, upper surface arched and convex. Pile of legs abundant, appressed and setate with some long fringes of fine pile beneath the anterior femur, shorter beneath the hind femur and more scantily beneath the anterior and posterior tibiae. The hind tibia is stout throughout its length. The hind femur bears 5 short spines set in tubercles along the posteroventral margin. This tibia has a single, short, anterodorsal bristle near the middle and the apex carries 5 or 6 weak bristles. Middle femur with a stout bristle anteriorly at the outer third, a short one anterodorsally at the same level. This tibia has 4 short, weak bristles dorsally, 6 bristles anteriorly, 4 of which are long, conspicuous and stout and 3 weaker posteroventral bristles, besides a very stout, distal, ventral bristle. Anterior femur with abundant, long, coarse pile ventrally, its tibia with 2 or 3 prominent, long, ventral bristles and a few, fine, short, bristly hairs posteriorly. Claws comparatively slender, sharp, bent at apex; the pulvilli and bladelike empodium well developed.

Wings: The marginal cell is closed, with a long stalk; the anterior branch of the third vein ends at or slightly above the wing apex, the posterior branch far behind, the base of the second submarginal cell rises rather abruptly from the plane, third vein. First posterior cell widely open, fourth posterior cell closed with a moderately long stalk. Anal cell closed, anterior cross vein rectangular, entering the discal cell at the basal third. Alula large and the ambient vein complete.

Abdomen: The abdomen is robust and relatively short, shorter than the wings. At the base it is as wide as the mesonotum, only slightly narrowed posteriorly, its sides therefore not quite parallel and the pile is minute, dense, appressed and setate. Sides of first tergite with 3 short, but quite stout bristles, second to fifth tergites laterally in the middle of each side, each with 1 short but conspicuous, stout bristle. Males with six tergites, females with six visible tergites, the seventh completely tucked beneath the sixth. Male terminalia large, completely rotate, the epandrial element forming a great, swollen, anteriorly bulbous or boatlike structure. The gonopod almost but not quite closes off the true ventral aspect of the cavity. Female terminalia rather long, narrow and laterally compressed.

Distribution: Ethiopian: *Storthyngomerus aurea* Bromley (1935); *dymes* Walker (1855); *testaceus* Macquart (1838); *tridentatus* Fabricius (1805).

Genus *Rhopalogaster* Macquart

FIGURES 250, 284, 619, 625, 1221, 1222, 1230, 1231, 1298, 1307, 2095, 2098, 2143

Rhopalogaster Macquart, Histoire naturelle des insectes, diptères, vol. 1, p. 279, 1834. Type of genus: *Laphria longicornis* Wiedemann, 1828, by monotypy.

Flies with short pile, greatly reduced bristles. The head is short and wide and the face is short, rounded and retreating below. They may be readily recognized by the strongly petiolate or constricted abdomen and the very long antenna. The first segment is usually 10 times as long as the second; the third segment varies from 1½ to more than 2 times the combined length of the first two segments. The wings are slender and the first posterior cell is closed. Length 15 to 20 mm.

Head, lateral aspect: The face is short, not quite plane and at the most only very slightly concave. Eye of moderate length, equally developed above and below; it is rather strongly convex anteriorly, gently convex behind. The occiput is exceptionally thick and well developed especially towards the medial portion; it continues to be thick above and below and slopes rather rapidly down to the eye margin. In dorsal and ventral aspects the eye is strongly recessive at the posterior corners. Pile of occiput dense, long and fine, with only very slender, dorsal bristles scarcely more than stiffened hairs in the type of genus. Proboscis, long, extending well beyond the face and compressed laterally; the apex is bluntly pointed and tapered both from above and below. The immediate base of the proboscis is distinctly swollen but only ventrally. The medial ridge is absent; the apex bears some fine, short pile above and below, the base ventrally has a number of long, fine hairs. Palpus clearly of two segments but the first segment is small, short and excavated; the second segment is also small and is cylindrical, with apical bristles.

Head, anterior aspect: The face below the antenna is one-fourth the head width, with parallel sides below. Subepistomal area moderately large but distinctly horizontal and not encroaching upon the face; it is concave and bare. Face pubescent, bearing numerous, long, slender, bristly hairs on the lower half or two-thirds. Laterally on the upper two-thirds, the face characteristically has a marginal band of prominent, bright, flattened scales or scalelike pile. Antenna attached at the upper third of the head and exceptionally long; the first segment is 10 times as long as the second, the second beadlike. The third segment is flattened laterally, a little wider or higher than the basal segments, of nearly uniform height or gradually widened towards the apex, which may be obliquely truncate; in the middle of the truncate apex it has an extremely minute spine. Pile of the first segment long and bristly and abundant dorsally and ventrally, becoming shorter towards the apex. The front is short, pollinose with bristly pile or weak bristles laterally. The small but moderately high ocellarium has the anterior ocellus low and bears 2 pairs of equally long, stout, divergent bristles and sometimes 1 or 2 additional fine hairs in the middle area also. The eye facets are very strongly enlarged centrally.

Thorax: The thorax is pollinose; the pile of the mesonotum is fine, bristly and erect and scanty in quantity. A narrow band of acrostical elements is present; dorsocentral elements are differentiated anteriorly and there are a few longer, slender bristles posteriorly. There is almost no lateral pile except for a small, triangular area medial to the humerus and a narrow band along the lateral margin. Humerus with stiff pile only. Lateral bristles are present and consist of 1 or 2 notopleural, 1 supraalar, 1 to 2 postalar, and on the scutellum 4 pairs of long, slender bristles with additional, shorter, bristly hairs. Scutellum moderately thick and convex with a shallow basal crease, an impressed marginal rim and with a few stiff hairs on the pollinose disc. Propleuron with fine, moderately long, abundant pile ventrally; anterior mesopleuron with numerous long, fine hairs; the whole upper half and the posterior border of the mesopleuron with abundant, long, fine pile. The mesopleural bristles may be reduced to a single, very slender element which is a little longer and more conspicuous than the remaining pile. Pteropleuron apilose; hypopleuron with pile, metapleuron with a prominent, wide, vertical band of numerous, quite long, slender bristles. Metanotal slopes pubescent only; lateral metasternum with pile, the ventral metasternum with a few fine, scattered hairs. Postmetacoxal area membranous though small; the sides of the metasternum encroach onto the lateral third ventrally. Tegula with bristles.

Legs: All the femora slightly thickened through the middle; on the hind femur the thickening is distributed over both the dorsal and ventral halves; on the anterior and middle femora chiefly on the dorsal half. The pile of the legs is quite scanty and fine, on all the femora short and setate and appressed dorsally but fine and erect ventrally. The type of genus bears the following complement of bristles: on the hind femur 5 stout, tuberculate, lateral bristles and 8 similar, tuberculate ventromedial bristles, all quite sharply pointed. Dorsally there are 2 stout bristles and 2 or 3 weak bristles situated on the apical third; apex with 1 weak medial bristle. Hind tibia as long as the femur and rather slender, a little widened apically and with 6 or 7 short dorsal bristles, 3 or 4 slightly longer dorsolateral, and a fringe of long, fine hairs medially; there is a ventral brush of setae only at the apex. Middle femur with a single, stout, dorsal bristle at the outer third, and 2 posteriorly near the apex; the midtibial bristles are long, basally stout, but finely attenuate and oblique. There are 3 anterodorsal, 4 posterodorsal, 4 or 5 ventral elements scarcely more than hairs, and 2 long, stout, anteroventral bristles on the outer half. Anterior femur with long, fine, stiff hairs dorsally and ventrally; its tibial bristles are weak and consist of 6 anterodorsal, 8 or 9 posterodorsal, and 4 or 5 ventral bristles. All tarsi end in slender, sharply pointed, apically curved claws, large pulvilli, and a long, bladelike empodium not or but little swollen at the base.

Wings: The wings are slender, the marginal cell is closed with a long stalk. The anterior branch of the third vein ends just above the wing apex or at the apex; the posterior branch ends a considerable distance back along the posterior margin. First posterior cell relatively narrow and closed with a long stalk which varies somewhat in length; fourth posterior cell closed with a long stalk and the anal cell likewise. Middle end vein of the second basal cell short. Alula moderately wide, ambient vein complete.

Abdomen: The abdomen is slender and distinctly petiolate, narrowest at the base of the second segment and in the type of genus gradually tapering back to the end of the fifth segment or in other species with the sides of the elongate second segment parallel and the third segment approximately shaped as an equilateral triangle. In the male there are seven tergites, the seventh slightly reduced in length to about one-half; in the female seven tergites, the seventh two-thirds as long as the sixth, the eighth tergite incorporated in the terminalia. Pile of the abdomen abundant, but quite short, appressed and setate. Male terminalia large, elongate and conspicuous with a large, bowl-shaped receptacle ventrally composed of the entirely fused epandrium and with an apical, thin, curved, narrow, platelike extension. Hypandrium deeply sulcate but fused at the base. The female terminalia consist of a moderately long, dorsal, conical projection, the sides somewhat compressed laterally. Ventral processes apparently absent.

Distribution: Neotropical: *Rhopalogaster araujoi* Carrera (1952); *aurifer* Hermann (1912); *bella* Bromley (1929); *fascipennis* Hermann (1912); *lineata* Hermann (1912); *longicornis* Wiedemann (1828); *niphardis* Hermann (1912).

Genus *Borapisma* Hull

FIGURE 621

Borapisma Hull, Ann. Mag. Nat. Hist., ser. 12, vol. 10, p. 887, 1957. Type of genus: *Borapisma chinai* Hull, 1957, by original designation.

Medium size flies with robust but clavate abdomen; characterized by the strongly swollen hind femur of the male, which is plane below and also by the very long, prominent, third antennal segment, which is like that found in *Rhopalogaster* Macquart. They differ in the open, first posterior cell, the distally swollen femur and the strong concavity just below the middle of the face. The proboscis is quite truncate at apex, and the lower face protuberant with long, slender bristles. Supraalar sclerite of mesonotum with a posteriorly directed protuberance. Length 17 mm. including the antenna.

Head, lateral aspect: The face protuberant above and merged with the protuberant front. Across the middle of the face is a marked, transverse depression or concavity nearly plane with the eye and the lower third of the face is rounded and gibbose and, comparable to the upper face, extensive. Occiput prominent everywhere except at the immediate vertex; it bears quite abundant, long, fine pile and bristles are restricted to the upper fourth and are long and slender. Proboscis strongly compressed laterally, quite truncate and punctate at the apex, which bears some fine pile. From lateral aspect the proboscis is a little widened or deepened towards the end. Palpus slender, cylindrical, elongate, with blunt, spikelike bristles. The antenna is situated on the same level as the vertex, therefore at the top of the head, although the eyes rise a little above the antennal base. The first segment is elongate, at least five times as long as the minute, beadlike second segment. The third segment is nearly twice the combined length of the first two, strongly compressed laterally, a little narrowed at the base and beyond the base its width is distinctly greater than the width of the basal segments; the apex has a minute, dorsal spine. First segment with 1 long, ventral bristle and some shorter, bristly hairs below.

Head, anterior aspect: The upper face is a little less than a fourth the head width and distinctly wider below and largely bare in the middle; it bears pale, slightly flattened, shining hair laterally, a few long, slender, bristly hairs, and some erect pile below the antenna, and on the lower basal gibbosity, on each side, is a vertical row of 8 quite long, slender bristles with additional, smaller elements extending along the sides of the subepistoma. In the middle of the lower face is some long, yellow pile. Front extremely short with a deep, lateral crease on the outer fourth extending back behind the ocelli. Ocellar protuberance quite small with minute ocelli and a pair of long, slender bristles. On each side the eyes rise considerably above the vertex.

Thorax: The thorax is wide and comparatively flattened. It is convex along the anterior margin, less so behind and bears numerous, fine, curled, pale hairs, undifferentiated in the middle. Along each dorsocentral row are about 12 long, extremely fine hairs beginning anteriorly. Humerus with slender, bristly hairs and bristles. Notopleuron with 1 weak, short bristle. On the supraalar region above the wing is a curious protuberance which bears 3 backwardly directed tubercles carrying stout, black, curved bristles. Postalar callosity with 2 pale bristles. Scutellum slightly convex, with the rim emarginate; the disc bears curled pile similar to the pile of the mesonotum; the margin bears 3 pairs of quite long, slender hairs. Metanotal callosity pollinose only. Pleuron partly bare with some pollen or micropubescence; pronotum with weak bristles and shorter bristly hairs. The propleuron with coarse, bristly pile. Posterior half of mesopleuron with similar pile, the whole dorsal border with longer, very slender bristles and in the middle of the posterior border there are 3 stout, long, backwardly turned bristles. Metapleuron with a vertical band of basally stout, distally fine, curved, long bristles. Postmetacoxal area membranous; prosternum united with the lateral propleuron.

Legs: There is a marked sexual difference in the legs. The femora are much more swollen on all pairs in the males; on the first four legs the swelling is chiefly expressed along the middle of the femur, on the hind pair most of the swelling is beyond the middle; all ventral surfaces of the femora are nearly plane. The legs are polished and shining, with scattered, fine, somewhat appressed hairs which become rather long and quite conspicuous ventrally on the first 4 femora, but less abundant on the hind pair. The hind tibia is rather stout, slightly arcuate, the basitarsus short, robust and a little longer than the next 2 segments. Bristles are reduced in number, are mostly tuberculate and rather stout. The tuberculate bristles are as follows: Hind femur with 1 ventrolateral on the outer third, 1 dorsolateral on the outer fourth; and hind tibia with 4 dorsolateral bristles but only long pile ventrally. Middle femur with 1 posterodorsal bristle on the outer fifth and 1 anterodorsal bristle on the outer fourth and with a conspicuous, anterior bristle near the base and 3 others anteroventrally along the middle. The middle and interior tibiae are rather short and dorsally bear quite slender bristles and some fine, long, bristly hairs posteroventrally and also anteroventrally. Anterior femur with about 15 long, slender, bristly hairs anteriorly on the distal half and numerous, similar hairs posteroventrally. Anterior basitarsus quite short. Claws are sharp; pulvilli well developed and wide; the empodium bladelike.

Wings: The wings are tinged with brown and with a conspicuous, diffuse, dark brown spot on the apical fourth before the apex, centered over the fork of the third vein. Marginal cell closed with a long stalk, anterior branch of the third vein nearly but not quite straight, the second submarginal cell is rather wide at the base but expanded only anteriorly. First posterior cell open but narrowed; posterior crossvein well developed. Anal cell closed with a short stalk; alula well developed; ambient vein complete.

Abdomen: The abdomen is comparatively robust and distinctly clavate, more so in the female. Surface densely covered with fine, suberect hairs and the first two segments with appressed, reddish golden, curled hairs. Much of the first segment, all of the second and the base of the third segment all orange red. Male with six tergites, those beyond the sixth are completely concealed below. Females with seven segments, the seventh segment concealed dorsally, exposed laterally and the eighth segment forming the blunt base of the ovipositor. The first segment is long, with 2 stout bristles laterally and some coarse, long pile. Second segment in the male with 2 or 3 stout bristles laterally in the middle of the lateral margin; these bristles are weaker in the female. The club of the abdomen begins at the base of the third segment; in the male the posterior part of the abdomen is widest at the end of the fourth segment and is not quite twice as wide as the base of the abdomen; but in the female the club of the abdomen is at least 2½ times as wide as the base of the abdomen. Male terminalia large, rotate, with the greater portion projecting ventrally beneath the abdomen so that less shows from the dorsal aspect. It differs from *Rhopalogaster* by having the gonopod rather strongly apposed dorsally. Female terminalia consist of the short, rapidly narrowed eighth segment, the long, conical, posteriorly depressed ninth segment and the moderately long tenth segment.

These insects appear to mimic certain Hymenoptera and there is also a syrphid fly *Kryptopyga pendulosa* Hull, to which, with its long antenna, club-shaped abdomen and dark, subapical wing spot, these asilids also bear a strong resemblance.

Distribution: Oriental: *Borapisma chinai* Hull (1957).

Phellopteron, new genus

FIGURES 256, 628, 1219, 1228, 2150

Type of genus: *Phellopteron farri*, new species.

Small flies related to *Rhopalogaster* Macquart and distinguished by the differently shaped abdomen and shorter, differently shaped third antennal segment. The abdomen in the male is barely wider apically at the end of the fourth tergite than at the base, whereas in the males of *Rhopalogaster* the base of the abdomen is drawn out into a long, narrow, cylindrical, petiolate tube on the second tergite, and the abdomen is strongly widened on the remaining tergites, so that it presents a strong, wasplike appearance. In *Phellopteron* the female abdomen is obtuse at the apex, a little wider at the base, and the last 2 sternites are bluntly turned vertically upward. The antenna has the third segment only a little longer than the combined length of the first two segments and it is widest in the middle, instead of apically expanded and flared as in *Rhopalogaster*. The males in *Rhopalogaster* have the hind femur swollen chiefly below, with a ventrolateral and ventromedial row of tuberculate spines. In *Phellopteron* the hind femur, swollen chiefly above, has only a row of stout setae along the ventromedial margin and its hind tibia, especially in the male, is strongly arcuate basically. Length including antenna 11 mm.

Distribution: Neotropical: *Phellopteron farri*, new species. From Jamaica.

Phellopteron farri, new species

Length including antenna 11 mm.

Male, female. Head: The head is black. Pile of front and vertex, antenna, and upper third of occiput black. None of this pile forms strong bristles. Ocellar tubercle with a pair of moderately stout, long bristles and 2 pairs of shorter, slender, bristly hairs. Face black, very thinly dusted with fine, greyish white micropubescence very much like pollen and with on the dorsal half a dense mat of silvery, appressed, scalelike hairs. The quite inconspicuous, low gibbosity has numerous, slender, moderately long, black, bristly hairs curved downward, changing to whitish hairs on the lowest portion of the face. Lower occipital pile and basal pile of the proboscis abundant, long, and white. Proboscis shining black. The small, short, cylindrical palpus has two segments and is blackish. Proboscis strongly and abruptly swollen at the base below. Antenna black, the first segment with numerous, stiff, black hairs above, laterally and below. This segment is three or four times as long as the short, second segment. Third segment in males rather slender, barely wider in the middle and 1⅓ times the combined length of the first two segments. Antenna of females similar but with some white hairs ventrally on the first segment, and the third segment, while shaped similarly, is proportionately a little longer, slightly wider in the middle, and barely wider at the apex, which is obliquely truncate.

Thorax: The thorax is opaque black, with a pair of faint, light brown vittae visible only from behind and ending just past the suture. The suture is margined with pollen of the same color, expanded submedially into a knoblike figure, which appears triangular from the rear. There is similar pollen visible posteriorly along the lateral margins of the mesonotum. The submedial vittae may be wanting. Scutellum opaque black with 5 or 6 pairs of long slender, upturned pale bristles or bristly hairs. Pleuron black, thickly dusted with greyish white pollen, which becomes brownish in front of the black, metapleural bristles. Posterior corner of the mesopleuron with a conspicuous, spikelike, black bristle. Mesonotal pile sparse, fine, erect and black. Pleural pile whitish. Pleural pile white and abundant. Metanotal callosity without pile.

Legs: The legs are chiefly shining black, the hind tibia dark, reddish brown, somewhat more blackish at the apex, other tibiae also quite dark, reddish brown basally. In males the hind femur is rather strongly thickened chiefly but not entirely on the dorsal aspect, and its tibia is strongly thickened. Pile of the hind femur long but scanty and yellowish white except for a few, blackish hairs at the apex. Hind tibia with a dorsolateral row of 3 or 4 black, curved, basally stout, apically sharp bristles. Tarsi blackish, the claws black and sharp, the pulvilli large, broad, and brownish.

Wings: Male wing grey, rendered considerably darker by dense, black villi everywhere present, except on the basal half of the basal cell. Alula more than twice as along as wide. First posterior cell closed with a short stalk. Stalk of marginal cell quite long, longer than the stalk of the fourth posterior cell. Medial crossvein long, paralleling the upper margin of the discal cell.

Abdomen: The abdomen is dull black, the first, second, third, and fourth tergites with remarkably long, extensive, posterior, membranous margins much in contrast to *Rhopalogaster* Macquart, where they are quite narrow and of uniform width. In *Phellopteron* these membranous margins of the second and third tergites are across the middle of the tergites half or more than half as long as the tergite. Pile scanty, appressed, black and setate, with rather abundant, longer, yellowish white pile on the sides of the first and second tergites. Bristles absent on all the tergites. In the extreme posterior corner of the first tergite there are 2 or 3 slender, short, black, bristly hairs. Terminalia shining black, of the usual form found in Laphriini but unusually short, with the epandrial bowl deep, the gonopod with a posterodorsal, single, leaflike, brownish black appendage, having a blunt, slightly expanded apex.

Type: Male, allotype female, Trelawny, 12 miles south of Falmouth, Windsor Estate, May 14, 1956, collected by T. H. Farr. Three paratype males with the same data. Types in the Science Institute, Kingston, Jamaica. Two paratypes in author's collection.

Genus *Nusa* Walker

Figures 153, 291, 293, 294, 626, 627, 1224, 1233, 1295, 1296, 1304, 2077, 2092, 2099, 2102, 2140, 2149

Nusa Walker, Insecta Saundersiana, vol. 1, pt. 2, p. 105, 1851. Type of genus: *Nusa aequalis* Walker, 1851. Designated by Hermann, 1912.

Dasythrix Loew, Bemerkungen über die Familie Asiliden, p. 21, 1851. Type of genus: *Dasythrix infumata* Loew, 1851, by original designation.

Halictosoma Rondani, Ann. Mus. Civ. Stor. Nat. Genova, vol. 4, p. 298, 1873. Type of genus: *Halictosoma puella* Rondani, 1873, by monotypy.

Medium size flies, characterized by the numerous, strong bristles, but with short, appressed, setate pile. The surface is usually pollinose. The proboscis is comparatively weak, slightly but distinctly compressed dorsoventrally and the small, cylindrical palpus is clearly of two segments. The absence of the ambient vein immediately distinguishes them from *Andrenosoma* Rondani. The anterior branch of the third vein ends far above the wing apex. The first posterior cell is quite narrow, closed with a long stalk, or sometimes widely open; the medial and cubital veins tend to be evanescent towards the wing margin. Mesopleuron posteriorly with stout bristles. Length 12 to 23 mm.

Head, lateral aspect: The face is rather prominent, a little more prominent below, due to the recession of the eye, and gently convex; the eye is narrowed below due to anteroventral recession; it is strongly convex anteriorly, gently convex behind or sometimes plane through the middle. The pile of the occiput is rather dense and long and fine ventrally and may extend even to the upper third; it is replaced near the vertex with distinct bristles which characteristically become very stout and long near the upper corners of the eye, especially behind the vertex, and are rather striking in appearance. The proboscis is comparatively slender and weak, a little swollen at the base on the ventral portion, somewhat more distinctly swollen and gently tapered from the dorsal aspect. It is distinctly though moderately compressed apically in a dorsoventral direction. The medial ridge is long, extending to the apex but usually low. Proboscis directed obliquely forward or often chiefly downward. Palpus rather small, clearly of two segments, slender and cylindrical; the first segment is excavated, the second bears apical pile or bristles and is sometimes a little swollen in the middle.

Antenna attached at or above the upper third of the face, the first segment is stout and robust, a little longer than the second. The third segment is as long as the first two combined or sometimes a little shorter; it is slightly flattened and wider in the middle, gently tapered to base and apex, or sometimes more strongly tapered on the apical half than on the basal part. The apex bears a conspicuous pit containing laterally a visible spine or in some species with a short, microsegment carrying an apical spine; a microsegment is absent in the type of genus but a spine is present. The pile of the first segment consists dorsally of 3 or 4 fine, slender bristles; laterally and ventrally of 6 or 7 quite long, stout bristles; the second segment bears several slender bristles somewhat shorter dorsally and ventrally.

Head, anterior aspect: The face below antenna about a third the head width with parallel sides below. Subepistomal area large and long, two-thirds as long as the face or longer and strongly oblique, nearly plane and pollinose. The face is pubescent and densely covered through the middle with very stout, long, numerous bristles which include a dorsal, transverse row, containing 2 to 4 pairs, beneath the antenna; lateral margins of the subepistoma with very stout bristles; the face also carries additional, long, stiff, intermixed pile. Front rather short and pollinose with, in the type of genus, 6 rather stout, long bristles along the eye margin, the number is sometimes increased or reduced and replaced by weaker, slender, bristly hairs. Vertex strongly and deeply excavated in the type of genus but only moderately excavated in some species; the ocellarium is large and prominent with steep sides bearing in the type of genus a single pair of exceptionally long, very stout, divergent bristles to which is added a pair of slender, long, anterior bristly hairs and 2 fine hairs posteriorly. There may be 2 pairs of long, stout, ocellar bristles present. Eye facets centrally enlarged.

Thorax: The thorax is pollinose. The pile of the mesonotum is rather abundant, short, subappressed and strongly setate. Present are stout, long, lateral, mesonotal bristles consisting of 1 to 7 humeral, with, in the type of genus, a diagonal row of 3 strong, notopleural and similar oblique row of 3 others between the notopleuron and the humerus, or with 10 or 11 long, stout bristles over the whole notopleural area; also 2 to 4 supraalar, with sometimes 2 additional bristles opposite the postalar; 3 to 5 postalar; and 5 or 6 pairs of long, stout scutellar bristles on the margin. Other species may have 10 supraalar, 10 postalar, and 6 pairs of scutellar bristles. Scutellum moderately thick, pollinose, and convex, with shallow, basal crease and the surface with numerous, short setae or in some cases with rather long, fine pile. In the type of genus acrostical elements are not differentiated, but there are some long, fine, slender bristles on the posterior fourth of the mesonotum and these often become rather stout. Humeral bristles may be completely absent in some species. Propleuron with long, fine, pile ventrally and also, in the type of genus, on the postpropleuron; pronotum with weak bristles. In others the postpropleuron varies from slender, bristly hairs to as many as 7 or 8 strong bristles. Mesopleuron with a few scattered hairs dorsally, others on the posterior and anterior sternopleuron and again on the posterior hypopleuron. Pteropleuron apilose. Posterior margin of the mesopleuron with 2 to 5 long, stout bristles; metapleuron with a vertical band of long, slender bristles; metanotal slopes pubescent only. Lateral metasternum pilose, the ventral metasternum wide, chitinized, isolated behind and pilose; the postmetacoxal area membranous; tegula with bristles.

Legs: The legs are stout without being swollen; the pile is dense, rather short appressed and setate on the dorsal surfaces of the femora and tibiae. In the type of genus the following complement of bristles is present: hind femur with 3 or 4 lateral, 2 strong dorsolateral, 1 at the middle, 1 at the apical fourth, the latter doubled, and an additional pair at the apex dorsally on each side. Hind tibia rather stout, distinctly arcuate with 3 or 4 stout, dorsomedial bristles, a like number of dorsolateral and 2 stout, lateral bristles, 1 at the basal and 1 at the apical third. In the unique type of genus the middle legs are missing. Anterior femur with 1 strong, ventral bristle near the base, 3 to 5 posterodorsal, 2 of them weak, 1 strong anterior at the basal third and 1 anterodorsal at the outer fourth and 2 anterior bristles at the apex. The anterior tibia bears 2 basal anterodorsal, 4 strong posterodorsal, 3 stout posterior and 2 or 3 strong, posteroventral bristles. Tibia without spine. Claws long, sharp, curved from the base; pulvilli long, thin and wide; empodium long and bladelike, not or scarcely swollen at the base. In other species the bristles of the middle and anterior legs are even more strongly developed and somewhat more numerous.

Wings: The marginal cell is closed with a long stalk and is gently sigmoid, ending far above the wing apex; the costa ends above the wing apex and the ambient vein is completely absent. In the type of genus the first posterior cell is narrow throughout, closed with a long stalk, the fourth posterior cell closed with an extremely long stalk, all the medial and cubital veins evanescent towards the wing margin, the anal cell closed and stalked, the middle end vein of the second basal cell present but short, the alula only moderately wide but extending considerably outward from the base of the anal lobe. This is the condition of the wing in 10 described and 9 undescribed species. In 1 described and 2 undescribed species the first posterior cell is widely open.

Abdomen: The abdomen is robust and as long as or slightly longer than the wings. The first tergite is long, as long as the second medially but short laterally. The pile is coarse, appressed, setate and scanty. Laterally in the middle of each tergite are 2 or 3 quite stout bristles and sometimes slender, bristly hairs, especially on the sides of the first tergite. Males with seven tergites, the seventh being a third to half as long as the sixth; females with eight tergites, the last two or three a little narrowed laterally. Male terminalia prominent and partly rotate. The epandrium forms an undivided, only moderately convex, bowllike structure; the true ventral aspect is widely and fully open; the gonopod swollen at the base but separated ventrally. The aedeagus is exposed within the genital cavity and sometimes takes strange forms with grotesque terminal plates; bristles are moderately numerous. Female terminalia consist of a very short lappetlike plate protruded beyond the margin in the middle of the eighth tergite; lateral posterior corners of eighth sternite with a flat lobelike extension or process.

Distribution: Neotropical: *Nusa cinerea* Bellardi (1861); *inornata* Loew (1851); *leucophaea* Lynch Arribálzaga (1880).

Palaearctic: *Nusa puella* Rondani (1873); *ramicosa* Loew (1871); *triangulifera* Austen (1914).

Ethiopian: *Nusa africana* Ricardo (1925); *albicans* Engel (1932); *brachyptera* Loew (1851) [=*stenura* Loew (1857)]; *dispar* Gerstaecker (1871); *infumata* Loew (1851); ?*nigrapex* Bigot (1878); *ruficornis* Wulp (1899); *vittipes* Bezzi (1915).

Oriental: *Nusa aequalis* Walker (1851); *albibasis* Ricardo (1927); *elva* Walker (1849); *formio* Walker (1851); *grisea* Hermann (1914); *yerburyi* Ricardo (1927).

Australian: *Nusa queenslandica* Ricardo (1918).

Country unknown: *Nusa heteroneura* Macquart (1838), (?Arabia, ?Brasilia).

Genus *Cryptomerinx* Enderlein

Figures 2515, 2522

Cryptomerinx Enderlein, Zool. Anzeiger, vol. 44, p. 254, 1914. Type of genus: *Cryptomerinx laphriicornis* Enderlein, 1914, by original designation.

The following is Enderlein's description in translation:

> Female. Genus of the subfamily Asilinae. The venation is like that in *Asilus* Linnaeus or *Rhadiurgus* Loew, but the anterior branch of the fourth vein is completely straight on its base, not bent or arched (*bogig geknickt*). The third posterior cell is a little broader than the second posterior cell. The third antennal segment is short and spindle-formed (from the side view it is broadened and pressed together). Arista (seta) formed as a very short, strong, almost style-like bristle which is about one-sixth the length of segment three and which at the base is thicker and towards the apex sharpened.

Distribution: Neotropical: *Cryptomerinx laphriicornis* Enderlein (1914).

The figures given by Enderlein for wing and antenna are reproduced in this study. While it seems obvious that this asilid belongs to the Laphriinae and not to the Asilinae, it might have remote affinities with the Laphystini. The wing venation is not greatly different from *Nusa* Walker and the antenna is almost duplicated by some of the South American relatives of *Nusa* Walker. A knowledge of the male terminalia would be very useful in determining its correct relationship.

Genus *Laxenecera* Macquart

Figures 215, 624, 1223, 1232, 2097, 2101, 2151

Laxenecera Macquart, Diptères exotiques, vol. 1, pt. 2, p. 77, 1838. Type of genus: *Laxenecera albibarbis* Macquart, 1838. Designated by Hermann, 1919.

Acurana Walker, Insecta Saundersiana, vol 1, pt. 1, p. 107, 1851. Type of genus: *Acurana sexfasciata* Walker, 1851, by monotypy.

Dyscris Loew, Övers. Svenska Vet.-Akad. Förhandl., vol. 14, p. 357, 1858. Type of genus: *Laphria albicincta* Loew, 1852, first of three species, by present designation.

Flies of medium size, distinguished by the short, appressed, abdominal pile, the stout, not spined femur, the bulboconvex face and elongate antenna. The face characteristically has numerous, very long, slender bristles or bristly hairs from top to bottom. The third antennal segment is slender, elongate, with long, conspicuous, dorsal setae, which in some species may extend the whole length of this segment; also on much of the basal part of this segment these setae extend down the sides and over the ventral surface. First posterior cell closed and stalked. Length 12 to 20 mm.

Head, lateral aspect: The head is moderately long. The face is strongly produced and convex, especially on the lower half, the eyes but little recessed below, strongly convex anteriorly and only slightly and gently convex behind. The occiput is swollen and thick on the lower half but obliterated on the upper third; its pile is unusually abundant and long especially on the lower portion. Weak, slender bristles begin near the upper fourth and are replaced by stiff hairs in the middle; there are approximately 5 or 6 pairs of slender bristles. Bristles are absent behind the vertex, being replaced by stiff, long hairs. The proboscis is relatively short, with a blunt apex, and varies from stout to comparatively slender and subcylindrical. The dorsomedial area is high, especially through the middle. The apex bears numerous, stiff, rather long hairs and a subventral lateral fringe for a short distance back from the apex. The pile on the ventral half and sides of the proboscis is long and especially abundant and the proboscis is basally swollen and directed obliquely forward. Palpus of two segments, the first segment excavated, the second with a minute apical pore. Both segments bear long pile ventrally; the second segment has stiff bristles dorsally and on all sides near the apex.

Antenna attached at the upper sixth of the head and unusually long and slender; the first segment is 2½ times as long as the second, and the third is twice as long as the first. The third segment beyond the middle becomes slightly wider than the second segment and near the apex it is slightly reduced and attenuate with a bluntly rounded apex and a shallow, dorsal groove on the apical fifth. The apex forms a downturned, spoonlike structure which encloses a short, stubby spine. Pile of first segment long and copious on all sides, except the middle, and with 7 moderately stout, long bristles below. Second segment with 5 stiff setae below and 5 above; second segment with some 20 setae below on the basal half and laterally and with more numerous dorsal setae which reach nearly to the apex.

Head, anterior aspect: The face width below antenna is one-fourth of head width and slightly divergent below; the subepistomal area is short and slightly oblique. The face without pubescence, except laterally, and very densely covered with long, slightly curved, stiff, bristly pile which is directed obliquely downward; the front is exceedingly short, somewhat divergent; the divergence is continued on up to the vertex and beyond to the dorsally extended upper eye margin. Sides of front along the eye margin with 2 rather stout, long bristles and an extensive patch of stiff pile. Vertex deeply excavated; the ocellar protuberance is moderately large and high and bears 3 pairs of long, stiff, divergent bristles. Central eye facets greatly enlarged.

Thorax: The thorax is coarsely pollinose or often bare over most of the mesonotum and pleuron. Mesonotum with fine, scattered, subappressed setae and often with considerable suberect pile. Acrostical and dorsocentral elements are not differentiated. Humerus pilose. The lateral margin bears stiff, long bristles which consist of: 2 to 4 notopleural, 6 to 15 supraalar, 6 to 8 postalar and 4 to 6 pairs of stout scutellar bristles. Scutellum flat, pollinose, with considerable stiff or flattened pile on the disc. In some species there are dorsocentral bristly hairs before the scutellum which become long and fine. Propleuron with numerous, long, fine hairs, the pronotum with stiff pile and no bristles. Upper and posterior mesopleuron with some stiff, long hairs; anterior section with some numerous, fine, long hairs and the upper posterior margin of the mesopleuron has 3 or 4 long bristles which vary from slender to quite stout. Pteropleuron without pile; anterior and posterior hypopleuron with 3 or 4 fine hairs, the latter with a patch spot of pubescence. Metapleuron with a wide band of numerous, long bristles. Metanotal slopes bullose and pubescent only. Lateral metasternum with numerous stiff hairs, ventral metasternal pile quite long; postmetacoxal area membranous, but slightly reduced in width; tegula pubescent only. Prosternum not dissociated, but a little narrowed posterolaterally above coxa.

Legs: The femora are characteristically thickened and stout, especially on the hind pair but all pairs lack spines. Bristles are especially numerous, rather long, and stout. The hind femur may bear the following bristles: 3 or 4 irregular rows across the dorsal aspect containing some 20 bristles, situated chiefly beyond the middle; the dorsomedial and medial aspects have 3 or more rows containing up to 30 bristles; the lateral aspect has 3 rows containing approximately 20 bristles; the ventral aspect may be well covered with short, stout setae. In other species the dorsal, medial and lateral bristles are restricted to a subapical cluster of about 8 bristles. Hind trochanters usually bulbous below and always with very numerous, stiff setae which may be blunt in some species and with 6 or 7 stout bristles laterally. Hind tibia stout, arcuate and bearing bristles as follows; 6 dorsal, 6 or 7 dorsolateral, 3 lateral, 6 weak, slender ventral, and a like number of weak ventromedial bristles. The ventral surface has a fringe of sparse, long, nearly erect pile and a brush of setae only at the tip of apex. Hind tarsal segments greatly shortened, the first four segments and the base of the fifth with medial setate brush. Middle femur densely clustered with stout bristles on the apical portion of the anterior, dorsal and posterior surfaces and with weaker, long bristles ventrally and posteriorly near the base and stiff hairs in between. Its tibia sometimes has an especially extensive complement of long bristles consisting of a dorsal row, double anterodorsal row and double posteroventral row as well as ventral elements. Each row may contain 7 or 8 bristles. The anterior femur may have stiff bristles posteriorly and dorsally near the apex and its tibia with the same complement as the middle tibia. Anterior tibial apex without spine. Tarsi end in long, spatulate pulvilli; long, basally thickened empodium; and stout, blunt claws which are strongly curved from the base.

Wings: The marginal cell, first posterior and fourth posterior cells each closed with a long stalk. The anterior branch of the third vein ends well before the apex; the second basal cell ends in three veins; alula large; ambient vein complete.

Abdomen: The abdomen is robust and rather convex across the tergites; the width is nearly or quite equal the mesonotal width, or even the pleural width. First tergite unswollen. Pile of abdomen minute, setate and appressed; often with tufts of longer, matted pile along the posterior margins or in the posterior corners and with some more or less erect, fringing pile along the lateral margins especially toward the base. Bristles may be restricted to the first three tergites or may extend on to the fourth with very weak elements on the fifth tergite. They tend to be especially numerous on the first tergite, or they may be restricted to the first two tergites and comparatively weak on the second. There are six tergites in the male, seven in the female; the seventh is a third or less the length of the sixth; the eighth tergite is concealed beneath the seventh. Male terminalia conspicuous and protuberant with a large, bowl-shaped, convex, and relatively short epandrium which tends to be rotate to the right, leaving the opened aspect of the terminalia facing the left or upward. The gonopods are not apposed medially. Female terminalia exceptionally short and inconspicuous, but protruding beyond the last tergite apically; the ventral plate is at most notched posteriorly.

Distribution: Ethiopian: *Laxenecera albicincta* Loew (1852) [=*zonata* Loew (1858)], *albicincta splendida* Hermann (1919); *andrenoides* Macquart (1846); *apiformis* Walker (1855); *auribarba* Karsch (1879); *auricomata* Hermann (1919); *auripes* Hermann (1919); *chapini* Curran (1927); *dasypoda* Speiser (1910); *dimidiata* Curran (1927); *flavibarbis* Macquart (1838) [=*?hirticornis* Guérin (1835)]; *funditor* Curran (1927); *langi* Curran (1927); *moialeana* Séguy (1939); *mollis* Loew (1858); *nigrociliata* Hermann (1919); *nigrocuprea* Walker (1855); *niveibarba* Hermann (1919); *rufitarsis* Bezzi (1908); *scopifera* Speiser (1910); *serpentina* Hermann (1919); *sororcula* Karsch (1887); *stuhlmanni* Roeder (1893); *tristis* Bigot (1858).

Oriental: *Laxenecera albibarbis* Macquart (1838) [=*?sexfasciata Walker* (1851)]; *?bengalensis* Wiedemann (1821).

Genus *Anypodetus* Hermann

FIGURES 242, 630, 1199, 1208, 1805, 2119

Anypodetus Hermann, Zeitschr. syst. Hymen. und Dipt., vol. 7, p. 69, 1907. Type of genus: *Anypodetus fasciatus* Hermann, 1907, by original designation.

Small, compact flies of exceptionally bare aspect, occasioned by the minute character of the pile. The mesopleuron has no stout bristle but each tergite has at least 1 stout bristle laterally. They are easily recognized by the absence of pulvilli and the almost exact alignment of the single end vein to the discal cell with the end vein of the fourth posterior cell. Length 8 to 12 mm.

Head, lateral aspect: The head is of medium length or longer; the occiput is moderately developed but does not begin to expand until some distance from the eye margin; it has scanty, fine pile below, less along the middle but rather more behind the vertex.

The bristles are unusually stout and begin at or just below the middle of the head. There are about 12 on each side. The face is moderately produced but never extensive; it grows gradually more prominent below and is slightly convex in profile. Proboscis short, not extended beyond the face, cylindrical, with a blunt apex which bears fine pile and the base is sometimes a little swollen. Palpus small and cylindrical; the first segment is minute, the second bears no apical bristle but has a few, fine, short setae laterally and below. The antenna is attached a little above the upper third of the head and is of only moderate length. The first segment is long or barely longer than the second but has 2 isolated, very stout, long bristles ventrally and sometimes ventrolaterally 2 other shorter bristles as well as a few other minute setae. Second segment with only a few setae near the apex above and below. The third segment is a little longer than the combined length of the first two and is either gradually dilated until it is widest in the middle and equally narrowed beyond, or is attenuate at the base and more abruptly widened just before the middle. It bears a distinct, short, cylindrical microsegment with oblique, truncate apex and minute spines.

Head, anterior aspect: The head is nearly twice as wide as high; the face below the antenna is more than one-fourth the head width and with nearly parallel sides. Surface of face pollinose, with numerous, stout, but comparatively short bristles which may extend from the base of the antenna or may be restricted to the narrow band above the epistoma. Subepistoma of moderate size and nearly horizontal; sometimes there is short, bristly pile laterally or a few minute hairs scattered about. Front short, pollinose, with a row of 1 to 4 stout, submarginal bristles. The front is wider than the face and the vertex may be equally wide or slightly narrowed. Vertex but little excavated and pollinose; the ocellarium is small with 1 pair of stout, long bristles and generally 1 or 2 minute hairs behind the ocelli.

Thorax: The mesonotum is moderately high, gently convex, thinly pollinose and densely beset with very minute, flat appressed setae, which are undifferentiated. Humerus with or without 1 or 2 short bristles. The lateral complement of rather stout and moderately long bristles consists of 1 or 2 notopleural, 1 or 2 supraalar, 1 or 2 postalar and no scutellar bristles. Scutellum thick, convex, with appressed, minute pile. Pronotum with or without fine, slender bristles but always with coarse pile. Whole pleuron pollinose, with almost no pile; there are a few minute hairs or setae on the prothorax, 2 on the posthypopleuron. Mesopleuron without bristles. Metapleuron with a vertical band of 12 long, slender, distally curved bristles. Metanotal callosity pollinose only. Metasternum bristly pilose, postmetacoxal area membranous. Prosternum fused laterally.

Legs: All of the femora are a little swollen and in some species the hind femur may be strongly swollen, chiefly above but slightly below. The pile is dense, fine, short and setate. Bristles are numerous, stout, but generally quite short; the hind femur bears 7 or 8 ventrolateral bristles, 4 or 5 smaller, ventral bristles, 4 middorsal bristles, 1 medial subapical, and 1 dorsomedial bristle, besides 2 basal medial bristles. The hind tibia bears 3 dorsolateral and 2 shorter dorsal bristles and 2 anterior bristles; most of these lie on the basal half. On this tibia are 4 very fine, nearly erect, ventral hairs and the apex carries 9 bristles but 2 of them are quite small. Middle femur with a conspicuous bristle dorsally, anteriorly, and posteriorly at the subapex and likewise 6 shorter, posteroventral bristles and 2 or 3 ventral bristles besides 4 or 5 small anterior bristles. In some species only the 3 bristles at the subapex are present. The middle tibia bears 3 stout anterodorsal, 4 shorter dorsal bristles, 1 or 2 posterodorsal, 4 posterior, 5 posteroventral, and 2 slender, short, ventral bristles. In some species the ventral bristles are quite long. Anterior femur with a prominent bristle at the subapex anteriorly and dorsally and 2 or 3 short bristles near the base ventrally and posteriorly or sometimes only with the 2 bristles at the subapex. This tibia bears 3 fine, anterodorsal bristles and 2 to 4 stronger, posterodorsal bristles; it also has 2 to 4 posterior bristles and sometimes in addition 2 or 3 posteroventral bristles; in some species there may be 3 long, ventral bristles. Apex of anterior tibia without spine. Tarsal segments slender, rather short, with subapical circlets of 6 rather short but quite stout bristles. Claws long, slender, sharp, apposed, slightly curved, the hind pair more strongly curved and the pulvilli absent. The empodium is long.

Wings: The wings are broad, tinged with pale brown to a varying extent. The marginal cell is closed with a long stalk; the anterior branch of the third vein is a little sinuous and ends a little before the apex of the wing and the posterior branch ends far behind the end of the wing. The base of the submarginal cell rises abruptly. The discal cell ends in one vein nearly or quite aligned with the end vein of the fourth posterior cell. Fourth posterior cell closed with a long stalk. The anal cell is closed and stalked, the alula moderately large, and the ambient vein complete; the first vein sometimes bears coarse setae.

Abdomen: The abdomen is broad, robust and rather short, shorter than the wings, the segments of nearly equal length. The pile is dense, fine, quite short and flat appressed. The sides of the first tergite bear 3 to 4 stout, short bristles; middle of the lateral margins of remaining tergites with 1 equally stout bristle. Males with six tergites, females with the same number. Male terminalia rather small and short, partly rotate and much of it recessed beneath the sixth tergite. The proctiger is long, flat, trapezoidal with a medial groove. The epandrium is broad and convex merging laterally with the gonopod. The gonopod has a comparatively slender, sharp, curved apical process and below a ventral bulblike process. Hypandrium short and recessed or absent. Female terminalia short and conical.

Distribution: Ethiopian: *Anypodetus fasciatus* Hermann (1907); *fascipennis* Engel (1924); *maculipennis* Ricardo (1925); *nigrifacies* Ricardo (1925); *semirufus* Engel (1924).

Genus *Sporadothrix* Hermann

Sporadothrix Hermann, Denkschr. med.-natur. Ges. Jena, vol. 13, p. 166, 1908. Type of genus: *Sporadothrix gracilis* Hermann, 1908, by original designation.

The following data on this genus are taken from Hermann's description.

The author states that this genus is based on a well preserved, unique individual, except for the wing, concerning which no details can be obtained. The author goes on to express the hope that in basing a new genus on such a damaged specimen that his description and illustrations will suffice for recognition.

This interesting species belongs to that relatively uncommon group of Dasypogoninae which completely lack pulvilli. Hermann compares it to *Acnephalum* Macquart, *Sisyrnodytes* Loew, *Lasiocnemus* Loew, *Euscelida* Westwood, *Dicranus* Loew, *Anarolius* Loew, *Ablautus* Loew, none of which he finds are related to *Sporadothrix*. He also compares it with *Rhadinus* Loew. He finds that *Sporadothrix* separates itself from *Rhadinus* by the unusual bareness of the thorax and abdomen and also by the fact that the first tarsal segment is scarcely longer than the second one. He finds that it agrees in many respects with *Psilinus* Wulp, but besides the greatly denuded aspect he calls attention to the restriction of the stout mystax to the lower third of the face. According to Hermann *Sporadothrix* is characterized in the following manner (translation):

> The whole aspect is slender, the whole body, with exception of the sternopleuron with extensive, scattered, almost bristlelike hair; although it appears to be strongly covered with hair, this is only the result of the length and thickness of the hairs rather than its density. Face narrowed towards the front and vertex; it is as broad as the diameter of one of the protruding eyes which have very large, central facets. The head appears in consequence of the wide face to be twice as wide as high. (*Scheitel nur in massiger Weise eingestelt*). Ocellar tubercle relatively weak. The whole lower face to a less degree is uniformly arched, without any real protuberance; the mystax reaches up to base of antenna but leaves clear a medial, oblong area. Proboscis straight and blunt. Palpi cylindrical and with strong bristles. First antennal segment very short, the second segment twice as long and both quite strongly covered with hair. The third segment is one and one-half times as long as both basal segments together, relatively slender and at least thinner than the preceding segments; on its base the third segment is rounded like a sphere and is extended forward like a thin staff, to which is joined a relatively long end segment; of this end segment (*Endgriffel*) the basal segment is short, but the terminal segment is blunt yet has considerable length. Abdomen four times as long as the thorax, slender and somewhat narrowed apically. Male genitalia is spear-like, without other peculiarities. Legs quite robust; the hind legs are stronger but without any particular thickening. On all the legs the metatarsus is as long as the three following segments together; last segment as long as the metatarsus, the claws strong, without pulvilli.

Distribution. Ethiopian: *Sporadothrix gracilis* Hermann (1908).

This genus, described by Hermann from the Kalahari Desert suggests in some ways the genus *Anypodetus* Hermann, which he described at the same time from that desert and which also lacks pulvilli and has a characteristic bare, denuded aspect.

Genus *Dasylechia* Williston

Figures 279, 629, 1210, 1214, 2133, 2159, 2161

Dasylechia Williston, Journ. New York Ent. Soc., vol. 15, p. 1, 1907. Type of genus: *Hyperechia atrox* Williston, 1884, by original designation.

Large, exceptionally robust, humblebee-like flies, rather readily distinguished by the enormously swollen and clavate second palpal segment, the very short, swollen and robust proboscis and the dense, long, coarse pilose cover of the broad face. The single known species is very rarely found. It may be considered a phylogeront. Length 27 mm.

Head, lateral aspect: The head including the face is rather long. The face is prominent throughout the middle and below, gently convex and receding somewhat towards the base of the antenna. The occiput is tumid and thick except near the vertex; it slopes from the lower eye margin rather strongly so that it is thickest sublaterally. The pile is quite dense and coarse and covers the whole posterior surface. Bristles are absent but the pile becomes stouter and stiffer above. The eye is short, high, and greatly flattened in front. Proboscis short, not extending beyond the face, but extremely robust throughout, with a prominent, triangular carina; the apex is truncate with many short, bristly hairs directed outward. There is a dense, basilateral tuft of long, bristly pile. Palpus clearly of two segments; the first is excavated and bears bristly hairs below; the second is greatly swollen, almost as wide as the proboscis, short, rounded apically, and microporate: this segment bears very dense, long, slender bristles on all sides except the medial. Antenna attached at the upper fifth of the head; the front is almost eliminated. The antenna is only moderately elongate, shorter than the head, the first segment is as long as the second, but much more robust and swollen, bearing numerous, mostly pale and chiefly lateral, bristly hairs, many of them quite long, and some of them dorsal or ventral. The second segment is more slender, especially towards the base, with 3 or 4 similar, long, slender bristles at the apex above and below. The third segment is about as long as the first two combined; it is only a little wider than the second, the greatest width lies before the middle, the base is a little narrowed, the distal half slightly narrowed; the apex bears a stout, cylindrical, apically truncate, spine-tipped microsegment which is twice as long as wide.

Head, anterior aspect: The head is broad and almost as wide as the thorax; the face is quite wide, not quite one-third the head width and a little divergent below. It is unusually densely covered with very long, quite slender bristles and bristly pile. Subepistomal area large, concave, oblique. Front very short, with a dense tuft of long bristles beside each eye margin and numerous, shorter bristles submedially. Vertex deeply excavated, the whole sides of the vertex densely beset with long, coarse pile. Ocellarium only moderately large with on each side a tuft of long, bristly hairs, each containing 10 to 15 elements.

Thorax: The mesonotum is broad, long and low and densely covered with coarse, rather long, nearly erect, straw colored pile which is black anteriorly on the humerus and nowhere differentiated. Lateral bristles are absent; some of the elements on the postalar callosity, among the dense, long pile present there, perhaps approach the character of bristles. The whole posterior half of the thick, convex scutellum is very densely covered with the same long, bristly, pale pile. All pleural pile black, except on the metapleuron where all, except the flattened anterior surface of the very convex metapleuron, is densely covered with quite long, yellow, bristly pile. Posterior border of the mesopleuron with a dense fringe; upper pteropleuron with a dense, large cluster of long black pile; there are more scattered hairs present on the posterior hypopleuron, upper sternopleuron, anterodorsal mesopleuron and whole of the propleuron. Sternopleuron pilose; postmetacoxal area with a complete but short triangle of chitin continuous with the narrow extension from the lateral metasternum. Prosternum fused and continuous.

Legs: The femora are exceptionally stout and swollen, especially the first four, which are not only short but extremely robust. The tibiae are almost as wide as the femora. The tarsi likewise are unusually robust, the middle and anterior tarsi remarkably shortened. The pile of the legs is dense, bristly, and rather long and subappressed on the dorsal and posterior surfaces of the tibiae; on the dorsal surface of the middle tibia it grades off into a wide band of slender, sharp bristles containing a large number of elements. First four segments of the anterior tarsi of nearly equal length, each greatly swollen. Claws remarkably stout, strongly curved from the base and very bluntly pointed; the pulvilli are rather large, thick, comparatively slender and rounded at the apex; the empodium is reduced to a triangular, pointed, swollen, basal stub.

Wings: The wings are broad at the base, gradually becoming narrowed towards the apex. Marginal cell closed with a long stalk; the anterior branch of the third vein curves forward to end well above the apex of the wing and not far from the stalk of the marginal cell. The posterior branch ends far behind the wing apex; the rectangular anterior crossvein enters the discal cell near its base and as a result the posterior cell is extremely long; this cell is also very narrow and narrowly open or closed in the margin. Lower end vein of the discal cell long and drawn towards the base. Fourth posterior cell closed with a short stalk; anal cell closed with a long stalk; the ambient vein ends at the beginning of the anal cell. Alula very large.

Abdomen: The abdomen is exceptionally broad and robust, wider than the thorax and shorter than the wings. The abdomen is rather flattened over the middle portion and a little more convex laterally; the pile is everywhere quite dense, coarse and erect, with bristles absent. There are eight tergites in the female, the seventh and eighth each from a third to a fourth as long as the sixth. Female terminalia short and broad, with a medial depression, each half densely beset with bristly pile. No males seen.

Distribution: Nearctic: *Dasylechia atrox* Williston (1884).

Tribe Andrenosomini

The members of this tribe have a characteristic type of proboscis that is dorsoventrally depressed; it tends to be greatly swollen and stout basally, with only the portion near the apex thinned and pointed when examined in lateral aspect. In most of these genera the structure is quite wide apically from the dorsal aspect, but it is rather conical and acuminate in *Proagonistes* Loew. All the members of the tribe agree in one particular; the second palpal segment is excavated and unrolled into a thin, leaflike, sometimes pilose structure, and by this character they are sharply separable from the Laphriini in which the second palpal segment is normal or cylindrical in shape. The tribe includes some very large, robust, handsome species as, for example, the "woolly-pilose" flies of *Hyperechia* Schiner, which mimic xylocopine bees. The very large, elongate, bare, long-legged flies of the genus *Proagonistes* Loew are likewise remarkable. Members of this tribe occur in all the world regions but are scarce in Australia and southern South America. They appear to be better developed in the Palaearctic and Ethiopian regions.

KEY TO GENERA OF ANDRENOSOMINI

1. Postmetacoxal area fused but with a midventral seam. **Proagonistes** Loew
   Postmetacoxal area never fused but sometimes narrowed by lateral encroachment of chitin 2
2. Three submarginal cells . . . . **Pogonosoma** Rondani
   Two submarginal cells 3
3. The middorsal margin of the proboscis bears numerous, long stout bristles; metanotal callosity with bristles. **Neophoneus** Williston
   Proboscis without such bristles 4
4. Apex of proboscis greatly thinned dorsoventrally and pointed in lateral aspect, but comparatively wide and shovellike at apex 6
   Apex of proboscis as greatly narrowed laterally as dorsoventrally 5
5. Metanotal callosity without bristles; flies with very large, elongate abdomen, with strong tergal bristles. They are comparatively short pilose flies and the first posterior cell is widely open. Face extraordinarily gibbous, rounded and domelike; third antennal segment often widely oval and flattened . . . . **Proagonistes** Loew
   Metanotal callosity with bristles; medium to large, New World flies, less elongate in form; proboscis unusually pointed and upturned at apex; face also strongly gibbous and rounded; proboscis extending well beyond the face and upturned at apex; metanotal callosity with bristles. First posterior cell open or closed but always narrow. **Pilica** Curran
6. Metanotal callosity with bristles; large flies with broad, rather flattened abdomen and bright colored pile in part; wings often banded; first posterior cell narrow and narrowly open or closed; the dense mystax directed down and forward, beyond and enclosing the proboscis. **Dasyllis** Loew
   Metanotal callosity without bristles or pile 7
7. Ambient vein absent or depauperate; mystax of face decumbent and tectiform, extending to near the base of antenna; hind femur swollen distally; pile reduced on thorax and especially upon abdomen; first posterior cell closed with a long stalk . . . . **Cerotainiops** Curran
   Ambient vein normal 8
8. Proboscis considerably longer than face; palpus greatly widened and flared; first posterior cell widely open; abdomen rather narrow and pile moderate in quantity. **Systropalpus**, new genus
   Proboscis short, and usually scarcely longer than face . . 9
9. Large or very large flies, exceptionally stout and robust, with dense, long pile especially on the legs and the lateral abdominal margins and pleuron . . . . **Hyperechia** Schiner
   Flies of medium size, or sometimes rather small; form elongate and cylindroid, never exceptionally broad and stout; pile reduced and usually moderate in quantity. **Andrenosoma** Rondani

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Genus *Andrenosoma* Rondani

Figures 271, 644, 1213, 1217, 2083, 2100, 2142

Andrenosoma Rondani, Dipterologiae italicae prodromus, vol. 1, p. 160, 1856. Type of genus: *Asilus atra* Linné, 1758, by original designation.

Elaeotoma A. Costa. Atti Accad. Sci. Napoli, vol. 1, p. 49, 1863. Type of genus: *Elaeotoma adustiventris* A. Costa, 1863, by monotypy.

?*Senoxericera* Macquart, Diptères exotiques, suppl. 4, p. 71, 1849. Type of genus: *Senoxericera albibarbis* Macquart, 1849, by monotypy.

?*Stenoxericera* Kertész, Catalogus dipterorum . . ., vol. 4, 1909. Emendation.

Large flies, the cephalic and leg pile rather long and abundant, but the thoracic and abdominal dorsum with either comparatively scanty pile or rather short pile. Wings often smoky or brownish black, especially along the veins. Tergites with strong bristles, sometimes concealed by pile. Face strongly gibbous below, with stout or sometimes spikelike bristles. Third antennal segment dilated beyond the base, with no microsegment. Only two submarginal cells are present. These flies are quickly distinguished from the Laphriini of similar appearance by the dorsoventrally depressed, shovellike apex of the proboscis. Length 16 to 25 mm.

Head, lateral aspect: The head, including the face is quite long, the lower face is strongly gibbous and produced. Occiput tumid and prominent below due to the recession of the eye, which begins at the upper fourth of the head and is gradual. Pile of occiput dense, fine and long. There are a few deeply placed, dorsal bristles often nearly hidden by pile. The proboscis is exceptionally stout, swollen below at base, the apex narrowed chiefly from below and the whole apical fourth above and below bears numerous, anteriorly curled bristles and bristly hairs. It is strongly flattened dorsoventrally at the apex and the ventral basal half is densely long pilose. Palpus of two segments, the second segment open and thin, flattened and scooplike, the outer surface and apex with bristly hairs. The antenna is attached near the upper fourth of the head and a considerable portion of the head extends below the eyes. The antenna is approximately the same length as the head, the first segment nearly twice as long as the second. The third segment is as long or a little longer than the first two, attenuate at the base but strongly dilated and flattened over the remainder and narrowing a little towards the apex. The apex bears a small pit and concealed spine.

Head, anterior aspect: The head is not as wide as the thorax; the face is wide, about one-third the head width, slightly divergent below and the upper, not gibbous, portion either has abundant, long, bristly pile or some weak bristles and pile. Pile generally coarse, but sometimes very fine and crinkled and scattered among the bristles of the whole face. Gibbosity of face with numerous, very long, curved, medium stout bristles or with shorter, less numerous, spikelike bristles. Front and face each with or without pollen. Vertex a little widened, deeply excavated and densely pilose laterally; the ocellarium is moderately large with 1 or 2 pairs of very stout bristles and sometimes some additional hairs.

Thorax: The mesonotum long and low, dully or strongly shining, with fine, scanty, nearly erect, bristly pile and sometimes posterior bare areas, or with the whole surface pilose. Pile mostly undifferentiated, though often longer behind. Some species have both acrostical and posterior dorsocentral elements differentiated. Humerus with abundant, bristly pile. The lateral bristles are stout and consist of 1 notopleural, 5 or 6 supraalar, a wide band of bristles on the postalar or a row with as many as 5 elements. The scutellar margin usually has a broad band of long, slender bristles and bristly pile, and similar elements over the disc, or with 3 or 4 pairs of long, stout bristles, a very few bristly hairs and a little, short, scanty pile on the disc. The mesopleuron posteriorly has 1 to several stout bristles and additional, abundant, bristly pile continued on to the upper sternopleuron. Propleuron with abundant, bristly pile, the pronotum sometimes with bristles. Prosternum fused and continuous. Metapleuron with a wide band of numerous, long, slender bristles. Metasternum pilose, the metanotal callosity without pile or bristles, the postmetacoxal area membranous.

Legs: The femora are quite stout and a little swollen distally on all pairs; together with the tibiae they tend to be densely covered with very numerous, quite long, bristly hairs of all grades in thickness. Some species have bristles better differentiated than others. Usually there are 2 stout, lateral bristles on the hind femur on the distal fourth and a tuft of 3 medially at nearly the same level. Hind tibia dorsally with a double row containing 7 long, slender bristles. Anterior tibia likewise with a double row containing 7 or 8 bristles. Claws stout and sharp, pulvilli well developed, the long empodium bladelike.

Wings: The marginal, fourth posterior and anal cells all closed with a long stalk. The anterior branch of the third vein ends well before the wing apex, the posterior branch ends far behind. First posterior cell closed with a long stalk in the type of genus, or open and a little narrowed. The end vein of the fourth posterior cell has moved far toward the base along the lower margin of the discal cell. Alula well developed; ambient vein complete.

Abdomen: The abdomen is generally broad and shining with fine, appressed, setate pile which becomes longer, coarse, more or less erect and often shaggy along the sides. At least the first 4 or 5 tergites have 1 or 2 strong bristles laterally. Males with six tergites well developed, the seventh shorter but not concealed. Females with seven tergites, the seventh also quite short. Male terminalia rather large, rotate, the epandrium only moderately long and undivided. The gonopod is prominent, the hypandrium quite small, leaving the genital cavity exposed. Female terminalia with the eighth tergite broad and triangular, convex and somewhat laterally compressed; the ninth is elongate and slender and pilose apically and also compressed.

This genus has a very wide but curiously scattered distribution with no concentration anywhere. Even including the species of *Pogonosoma* Rondani, which is only an *Andrenosoma* with three submarginal cells, there is no great number of species known from any part of the world.

Bezzi (1908) suggested that *Senoxericera* Macquart is the same as *Andrenosoma* Rondani and I believe that he is correct. However, I have not seen the type and withhold a decision in this matter. If they are the same, then *Senoxericera* takes precedence over *Andrenosoma*.

Distribution: Nearctic: *Andrenosoma cruenta* McAtee (1919); *fulvicauda* Say (1823) [=*pyrrhacra* Wiedemann (1828)].

Neotropical: *Andrenosoma acunai* Bromley (1929); *appendiculata* Macquart (1846); *camposi* Curran (1931); *chalybea* Williston (1885); *cincta* Bellardi (1861); *cinerea* Bellardi (1861); *crassa* Bromley (1929); *erythropyga* Wiedemann (1828); *igneum* Bromley (1929); *laticornis* Walker (1855); *mesoxantha* Wiedemann (1828); *purpurascens* Walker (1851); *pygophora* Schiner (1868); *quadrimaculata* Bromley (1929); *rubida* Williston (1901); *rufiventris* Blanchard (1852); *sarcophaga* Hermann (1912); *sexpunctata* Williston (1901); *varipes* Banks (1920); *xanthocnema* Wiedemann (1828).

Palaearctic: *Andrenosoma albibarbe* Meigen (1820) [=*adustiventris* A. Costa (1863), *erythrura* Loew (1847)]; *albopilosum* Villeneuve (1911); *atra* Linné (1758) [=*violacea* Meigen (1804), *prostrata* Scopoli (1763)]; *bayardi* Séguy (1951); *cyrtoxys* Séguy (1951); *leucogenys* Séguy (1951); *pusilla* Hermann (1905); *serrata* Hermann (1905); *trigoniferum* Hermann (1905); *violacea* Fabricius (1781).

Ethiopian: *Andrenosoma africana* Ricardo (1927); *albibarbis* Macquart (1849); *?boranica* Corti (1895); *igniferum* Engel and Cuthbertson (1937).

Oriental: *Andrenosoma cedrusa* Ricardo (1927); *choprai* Bromley (1935); *crassipes* Fabricius (1805); *fusifera* Walker (1865).

Australian: *Andrenosoma queenslandi* Ricardo (1927); *tectamus* Walker (1849); *vidua* Bigot (1878).

Perris (1871) treats the larva of *Andrenosoma atra* in detail; Brauer (1883) considers the pupa.

Genus *Pogonosoma* Rondani

FIGURES 238, 622, 1244, 1253

Pogonosoma Rondani, Dipterologiae italicae Prodromus, vol. 1, p. 160, 1856. Type of genus: *Asilus maroccanum* Fabricius, 1794, by original designation.

Large flies, very similar to *Andrenosoma* Rondani but readily distinguished by the presence of three submarginal cells and the complete crossvein separating them. Length 18 to 24 mm.

Head, lateral aspect: The head is long and very similar to *Andrenosoma* in the extensive, ventrally gibbous face which is densely beset with stout, long bristles. The occiput is very prominent below, the eyes recessive on the lower two-thirds. Proboscis similar to *Andrenosoma* and the palpus likewise. The antenna is attached at the upper fourth of the head and about as long as the head exclusive of the gibbosity; the first two segments are stout, the second is a little shorter than the first. The third segment is strongly dilated beyond the attenuate base and it is strongly narrowed near the apex and ends in a pit with a small spine. First segment with a very stout, ventral bristle, the second with 1 or 2 stout, dorsal bristles and sometimes ventral bristles as well; both segments have additional bristly hairs above and below.

Head, anterior aspect: The head is not as wide as the thorax; the face is wide, slightly divergent below and about two-fifths the head width; it is densely covered with coarse, long pile and the gibbosity bears numerous, long, stout bristles, which sometimes extend beyond the proboscis. Subepistomal area large and oblique. The front is quite short, the vertex deeply excavated, the ocellarium large but low, with 1 pair of long, stout bristles and sometimes more slender bristles and pile. Sides of the front along the eye with several stout bristles and some additional pile.

Thorax: The mesonotum is long and rather low, generally shining, or sometimes with pollinose stripes; the pile is relatively abundant, suberect and bristly. A double acrostical row of bristly hairs is present and the posterior pile becomes longer but scarcely differentiated. The lateral bristles are stout or slender and consist of 1 notopleural, 3 to 6 supraalar, 3 to 8 postalar bristles. The scutellum has 3 or 4 pairs of long, moderately stout, marginal bristles and the disc bears either long, bristly pile or still longer, slender bristles. Mesopleuron with 1 to 2 posterodorsal bristles and much long, coarse pile continued on to the sternopleuron. Propleuron densely long, bristly pilose, the pronotum with or without bristles; the prosternum is rather narrowly fused and continuous. Metapleuron with a large triangle of numerous, long, bristly hairs; metanotal callosity pollinose only. Postmetacoxal area membranous but with a rather wide, lateral extension of the metasternal chitin; metasternum pilose.

Legs: The femora are all exceptionally stout and more or less swollen; the tibiae are also quite stout and the basitarsi short and all tarsi stout. In their pile and bristles the legs are very similar to those of *Andrenosoma* in that some of the elements are extremely stout and well differentiated, but the bristles are rather fewer and there are numerous, long, slender, bristly hairs which grade into a few, weak bristles. Hind femur with 2 stout, lateral bristles on the apical fifth and 1 similar medial bristle near the apex; in males the ventral surfaces have 2 stout bristles at the base, and likewise the other femoral bristles may be doubled in number and the distal enlargement a little greater. Anterior and middle tibiae with a rather striking anterior, posterior, and ventral fringe of long, dense, erect, bristly pile and slender bristles in the male, somewhat reduced in the females. Claws moderately sharp, the pulvilli and empodium long, the latter bladelike.

Wings: The venation is similar to *Andrenosoma.* There is a complete crossvein dividing the first submarginal cell into two parts. First posterior cell narrowly open, or closed and stalked, the ambient vein complete.

Abdomen: The abdomen is broad and robust and densely pilose; the pile may be long and matted in the middle of the tergites and longer laterally or it may be scanty and setate down the middle of the abdomen. First tergite sometimes with only weak, slender bristles, continued on to the second tergite, or there may be 2 to 4 stout bristles on all tergites. Males with seven tergites, the seventh nearly concealed. Females with seven tergites and the seventh quite short, or sometimes half as long as the seventh. Male terminalia rather large and elongate, rotate one-fouth, the broad epandrium rather short but not cleft, the proctiger very extensive beyond. The gonopod is long and prominent and sometimes has spikelike bristles.

Distribution: Nearctic: *Pogonosoma dorsatum* Say (1824) [=*dorsata* Walker (1855)]; *melanopterum* Wiedemann (1828); *ridingsi* Cresson (1920).

Neotropical: *Pogonosoma arachnoides* Bigot (1878).

Palaearctic: *Pogonosoma lugens* Loew (1873); *maroccanum* Fabricius (1794) [=*hyalipenne* A. Costa (1857)]; *minus* Loew (1869); *unicolor* Loew (1873).

Oriental: *Pogonosoma albopilosa* de Meijere (1913); *analis* de Meijere (1914); *beccarii* Rondani (1875); *bleekeri* Doleschall (1858); *cyanogaster* Bezzi (1917); *funebris* Hermann (1914); *semifuscum* Wulp (1872); *stigmaticum* Wulp (1872).

Perris (1871) treats the larva of *Pogonosoma maroccanum* Fabricius.

Genus *Pilica* Curran

FIGURES 239, 638, 1240, 1249, 2076, 2085, 2132

Pilica Curran, Amer. Mus. Novitates, No. 487, p. 20, 1931. Type of genus: *Laphria formidolosa* Walker, 1860, by original designation.

Large to medium size flies characterized by the very prominent, gibbose face, the long, sharply pointed, anteriorly thrust, and upturned proboscis which is both laterally and dorsally tapered and is greatly swollen at the base. The terminal segment of the palpus is of the excavated type. Related to *Andrenosoma* Rondani, which possesses some of the same characters. It is distinguished by the bristly pilose slopes of the metanotum. Length 18 to 28 mm.

Head, lateral aspect: Face extraordinarily prominent and villose, rounded and convex on the lower two-thirds. The eye is narrowed below and moderately recessive anteroventrally; it is strongly flattened anteromedially, rather high and short. Occiput short and poorly developed above, becoming considerably more prominent below; its posterior margin is largely plane. Pile of occiput rather fine and long, bristly on the upper half, longer and more curled below; the more medial elements laterally become a little stronger and more bristlelike; the dorsal elements are a little stronger but are quite slender in the type of genus. Proboscis thrust forward or slightly upward; at the apex it is curved upward into a quite sharp tip. The apical third bears a little short, stiff, scanty pile above and below. Dorsal ridge absent; ventral groove present, the base is very strongly swollen, the whole structure tapered both laterally and dorsally and rather subquadrate in section; the base has abundant, long, fine pile. First segment of palpus small, short, and excavated. The second segment is long, moderately wide, flared, and excavated, with a few bristles ventrolaterally at the apex.

Head, anterior aspect: The face below the antenna is not quite a third the head width and only slightly divergent below. Subepistomal area small, concealed by the palpus and the proboscis and only slightly oblique. The face is pubescent, sometimes bare in the center; it bears abundant, long, fine pile laterally below the antenna. Above the epistoma but widely over the central knob are numerous, long, stout bristles that thrust outward and reach beyond the tip of the proboscis. Antenna attached at the upper third, the first segment nearly twice as long as the second. The third segment is 1½ times as long as the first two and regularly oval at the middle; it is less than twice as wide as the second segment and regularly tapered to the base and apex. The apex bears a moderately large, dorsomedial, circular opening carrying a concealed spine. The first segment has 5 or 6 long, stiff hairs dorsally and considerably more hairs and bristles laterally and ventrally. Sometimes there may be 1 extremely stout, long bristle nearly as long as the third segment. Second segment with several stout bristles ventrally and dorsally and 1 very long, attenuate, basally stout bristle, considerably longer than the third segment. The front is extremely short and bare with 3 stout bristles and some long, stiff pile. Close beside the eye margin is considerable pile on the sloping sides of the deeply excavated vertex. Ocellarium moderately large, obtusely rounded and bearing 2 pairs of long, divergent bristles; the anterior element is quite stout, the posterior element moderately stout. Eye facets strongly enlarged centrally.

Thorax: The thorax is pollinose or appressed micropubescent with bands, spots, or stripes. Pile of mesonotum moderately abundant but everywhere bristly. Acrostical bristles are present in 1 or 2 rows; dorsocentral bristles begin to be differentiated before the suture and become long and slender posteriorly. Humerus with numerous, slender bristles. Posthumeral and notopleural area with 10 to 12 long, slender, bristly hairs and 1 very stout, long bristle. Very long, stout bristles are present on the remainder of the mesonotum as follows: 3 supraalar, 6 to 8 postalar, 4 or 5 pairs on the scutellar margin. The scutellum is thick, pubescent basally, fused to the base in the middle with strongly impressed rim and abundant, moderately long, more or less erect, bristly pile. Propleuron with numerous, long, stiff hairs and weak bristles; the pronotum has an exceptionally copious fringe of slender bristles in several rows. All the dorsal and postpropleural bristles are quite slender. The upper and anterior sternopleuron, pteropleuron, hypopleuron, upper, and posterior mesopleuron bear abundant pile; posterior upper mesopleuron has a large, dense tuft of many, slender bristles and at least 1 quite stout bristle. Metapleuron with a wide band of numerous, very long, apically bent, moderately stiff bristles. Metanotal slopes densely, bristly pilose. Lateral and ventral metasternum pilose; postmetacoxal region membranous but posteriorly reduced to a third the area width by encroaching chitin; tegula with bristles; squama with a long fringe in several rows.

Legs: All the femora are stout, the hind pair a little swollen from the base, plane below, arched above. The pile of the legs tends to be appressed dorsally on the femora, medially or posteriorly on the tibia but long, erect and bristly elsewhere. Hind femur with only a sparse fringe of the short, erect pile which becomes more abundant on its tibia; a brush of setae is restricted to the extreme apex. The type of genus has bristles which consist of 1 stout lateral at the outer fifth of the hind femur, 1 medially and 1 above it dorsomedially. On the tibia are 4 slender, long bristles dorsally, 2 or 3 dorsomedially. Middle femur with a close-set pair of 2 stout bristles posterodorsally near the apex, none anteriorly. This tibia is characteristic for its extremely long, slender, bristly hairs, or weak bristles; there are 10 to 12 pairs of anteroventral bristles, 7 posterior, 8 or more posteroventral, and 2 or 3 rows of a like number of ventral bristles, besides additional, short, erect pile anteroventrally and subappressed pile posteriorly. Anterior femur and tibia quite similar to the middle pair, with bristles lacking on the femur and the anterior elements of the tibia either lacking or greatly reduced; but all the posterior and ventral elements are similar and equally prominent. Basitarsus a little more than twice as long as wide; next three segments dilated apically and wider than long. All tarsi end in stout, sharp claws, chiefly bent at the apex, long, wide pulvilli and stout, bladelike empodium.

Wings: The wings are slender and a little longer than the abdomen. Marginal cell closed with a long stalk; the anterior branch of the third vein ends well above the apex; the posterior branch far behind. The first posterior cell is greatly narrowed throughout its length, closed in the margin; fourth posterior cell closed and stalked. Lower end vein of the discal cell pulled far backward and parallel with the anterior margin of the cell. Anal cell closed and stalked; alula large, ambient vein complete.

Abdomen: The abdomen is robust, as wide as the mesonotum and rather flattened. Pile of abdomen dense, fine, short, subappressed, becoming longer but scanty along the margins. First tergite with 3 or more long, strong, lateral bristles; remaining tergites with 2 or 3 quite stout bristles in decreasing numbers on the terminal segments. In the male are seven tergites, the length of seventh a third or less that of the sixth. Seven tergites present in the female. The eighth is incorporated in the ovipositor, which is slightly compressed laterally, rounded and subconical, with a long, slender, dorsal, posterior extension and bristles only below. Male terminalia only moderately conspicuous, rotate one-fourth to the left; the dorsal proctiger notable for an apical fringe of 9 long, quite stout, close-set, spinous bristles.

Distribution: Neotropical: *Pilica clausicella* Macquart (1849); *cyaniventris* Bromley (1934); *cyrtophora* Hermann (1912); *elegans* Bromley (1934); *erax* Bromley (1934); *erythrogaster* Wiedemann (1828); *formidolosa* Walker (1860); *olbus* Walker (1849); *phonicogaster* Hermann (1912); *punctata* Bromley (1934); *pyrrhopyga* Wiedemann (1828); *rubidapex* Hermann (1912); *rufipennis* Wiedemann (1828).

Genus *Neophoneus* Williston

Figures 273, 650, 1236, 1245

Phoneus Macquart, Diptères exotiques, vol. 1, pt. 2, p. 79, 1838. Type of genus: *Phoneus servillei* Macquart, 1838, by monotypy. Preoccupied by Aves, 1829.

Neophoneus Williston, Psyche, vol. 5, p. 255, 1889. Change of name.

Flies of medium or large size, characterized by the robust but comparatively elongate form, the stout bristles and short and reduced pile. The definitive character is the prominent, long proboscis which has a conspicuous tuft of long, stout bristles in the middle of the dorsal surface. Old World genera of the Ctenotini have a similar dorsal tuft of bristles but their claws are blunt. Wings slender and long with the first posterior cell long and narrow and narrowly open. Claws sharp. Length 20 to 35 mm.

Head, lateral aspect: The head is long and the face is unusually prominent; near or above the middle the face extends forward in a prominent, rounded, convex bulge or gibbosity. The occiput is thick below, disappearing at the upper third of the head. It is pubescent with dense, long, crinkly, extremely fine and delicate pile; the upper portion bears stiff pile and a few weak bristles. Proboscis large, conspicuous, thrust forward horizontally and not quite twice the head length; the outer half is flattened above and bears in the middle a characteristic and conspicuous tuft of numerous, long, stiff, black bristles. The apex is quite pointed, pilose and plane above, curved and tapered below; the apex bears in the middle a few black bristles directed forward ventrally, and from the middle to the base numerous, long, fine, white hairs. Palpus small and slender and composed of two segments; the first segment is cylindrical. The second segment completely excavated and flattened but unusually slender; it bears slender, scattered bristles which proceed from the whole surface but are stronger, longer and aggregated at the apex. The antenna is set at the upper fourth of the head and is as long as the head. The first segment is longer than the second. The third segment is 1½ times as long as the first two combined; it is slightly wider than the second, attenuate towards the base, and a little narrowed at the apex, which bears a pit and concealed spine. First segment below has 1 quite long, stout bristle; both the first and second segments bear bristly hairs above and below.

Head, anterior aspect: The head is unusually wide; the face is quite wide and the extensive genal area extends well under the eyes. The prominent facial gibbosity bears about 10 pairs of dense, long, stiff bristles spread over the whole, or in some species a like number of more restricted and centralized bristles. The surface of the face is densely micropubescent and on the upper part is long and abundant pile continued laterally down the sides of the face and also on the sides of the subepistoma. Front extremely short; the sides bear long, fine or stiff pile. Vertex deeply excavated but the ocellar tubercle is small and usually rather low, with 1 pair of long and 1 pair of short, divergent bristles.

Thorax: the mesonotum is long, moderately convex with acrostical elements present and a bare stripe on either side; the pile is scattered, scanty, fine, bristly and suberect; humerus pilose. Notopleuron with 1 to 3 bristles, supraalar with 1 to 3, postalar with 3 to 8, and scutellum with 3 or 4 pairs of bristles, all well developed. Prescutellar area with bristly hairs, scutellar disc pilose, the apex convex. Metanotum low, pubescent, with a low, inconspicuous lip, sides slightly swollen, with 5 or 6 hairs only. Propleuron pilose; pronotum with a wide band of fine pile. The mesopleuron is pilose and in upper posterior corner bears from 1 to 6 stout bristles; pteropleuron and posthypopleuron with abundant pile, metapleuron convex, with a wide band of moderately long, very fine, radiating pile. Lateral slopes of metanotum with 5 or 6 bristly hairs. The postmetacoxal area is membranous but the sides of the metasternum encroach a little. Prosternum not dissociated.

Legs: Hind femur and tibia moderately elongate, slightly dilated distally. Hind femur covered with dense, appressed setate pile and with an erect, ventral fringe of fine pile continuing on to the tibia. The dorsal and lateral surfaces bear numerous, very long and delicate hairs; the apex has 3 or 4 delicate bristles and 1 subapical lateral bristle which is quite stout; there is sometimes a bristle at the apex laterally and medially. Hind tibia with a double row of fine, moderately long bristles and short hairs. At the subapex are 2 or 3 ventral bristles. Middle femur with fine, long hair dorsally and ventrally and 2 or 3 bristles at apex posteriorly. Middle tibia with a double, divergent, dorsal row of 3 or 4 bristles; there are 4 rows below, consisting of a double ventral row and a ventrolateral and anteroventral row; all these contain delicate, long bristles; the posterior complement is for the most part stiffest. Apex with 2 posterior, 2 dorsal, 1 anterior, and 3 ventral bristles; anterior femur with a very long, dorsal and ventral fringe of fine, numerous hairs which are shorter anteriorly and posteriorly; tibia with a triple row of dorsal bristles, 1 posterior row; 2 or 3 ventral and subventral elements and 1 anterior row of bristles confined to the basal half only. The apex of the anterior tibia bears 2 or 3 ventral, 1 long dorsal, and 1 quite long, stiff, medial bristle but no spine. Tarsi end in stiff, unswollen empodium, well developed pulvilli, and sharp claws.

Wings: the wings are slender; the marginal cell is closed with a long stalk. The anterior branch of the third vein ends before the apex of the wing, the posterior branch far behind. The first posterior cell is long and quite narrow, and narrowly open. The fourth posterior and anal cells are each closed with a long stalk. The discal cell appears to end with one rectangular vein, as the lower component is quite long, turned toward the base and lies parallel to the upper margin of the discal cell. Alula large; ambient vein complete. The base of the second submarginal cell may have a spur vein, usually lacking.

Abdomen: The abdomen is robust and flattened across the middles of the tergites and more or less tapered in females, the sides more nearly parallel in males and never wider than the thorax. The pile is very short and flat appressed over the greater middle part of each tergite but generally long, fine and dense on the sides. Sides of first tergite with 1 to 4 bristles; sides of remaining tergites each with 1 to 3 stout bristles but in some species they may be very weak on the last two tergites. There are seven tergites in the male, the last short; in the female seven tergites also, the eighth more or less drawn out and included in the ovipositor. Male terminalia rotate and distinctive in the relatively short but large, broad, slightly flattened epandrium. The proctiger is exceptionally long and appears to consist of two parts; the basal section alone is almost as long as the epandrium and nearly as wide. The terminal part is long, more narrow and spatulate; it is intended that the basal half of this conspicuous proctiger as described above should be interpreted as being part of the epandrium and only the apical, spatulate portion considered as proctiger. Behind the bulbous, basal portion of the epandrium I can find the narrow seventh segment and an additional strip, which represents either the eighth tergite or the eighth sternite, probably the former; one or the other appears to be lost. Gonopod broadly fused for a considerable distance on the base of the true ventral aspect; claspers and pseudoclaspers appear to be present; each may end in some species in a grotesque, twisted plate; laterally each gonopod has some quite long, stiff bristles directed posteriorward. The genital cavity is small and narrow. Aedeagus long, narrow, slender and enclosed.

Female terminalia also distinctive; the eighth segment is quite elongate and conical becoming laterally compressed posteriorly; the sternite extends slightly farther and bears several stout, long bristles on each side; at the end of the eighth tergite the ninth is elongate but only half as long as the eighth; it is much more narrow, of uniform width and a little compressed laterally with truncate apex.

Distribution: Neotropical: *Neophoneus amandus* Walker (1849); *flavotibius* Bigot (1878) [=*flavitibialis* Bigot (1879) *?lapsus*, *flavipes* Bigot (1880)]; *mustela* Hermann (1912); *servillei* Macquart (1838).

Genus *Cerotainiops* Curran

FIGURES 227, 645, 1256, 1265, 1562, 1807, 1809, 2146, 2171

Cerotainiops Curran, Amer. Mus. Novitates, no. 415, p. 11, 1930. Type of genus: *Nusa abdominalis* Brown, 1897, as *Cerotainiops rufiventris* Curran, 1930, by original designation.

Flies no greater than medium size, or smaller. They are stout and robust, the abdomen comparatively short. They are perhaps most readily recognized by the closed first posterior cell with a long stalk, and the sigmoid anterior branch of the third vein which ends far above the wing apex, the costa ending almost at the same point. The branches of the medius tend to be evanescent; ambient vein absent or greatly reduced. Length 8 to 16 mm.

Head, lateral aspect: The face is moderately developed, growing gradually a little more prominent below; the eye is of moderate length, equally developed above and below, strongly convex anteriorly, flattened medially, gently convex behind and somewhat recessive anteroventrally. The occiput is prominent only on the lower half; completely obliterated on the upper third, becoming very well developed below, due chiefly to the eye recession. Pile of occiput abundant and coarse, short above, becoming longer below and with comparatively few bristles. Near the upper corner of the eye are 2 quite stout bristles and a close-set cluster of 3 stout bristles on each side behind the vertex. Proboscis held straight forward; it is very strongly flattened dorsoventrally; from the side it is pointed at the apex, greatly swollen towards the base, the apical fourth has a number of stiff, bristly hairs above and below; it is without pile otherwise, except for some long, coarse hairs ventrally at the base. Palpus with both segments excavated, the second is rather slender and elongate and bears several, stout, apical bristles. The antenna is attached at the upper fourth; the first segment is a little longer than the second. The third segment is slightly longer than the first two, rather thick and swollen laterally beyond the base; beginning at the base it expands quite extensively until almost pear-shaped, then near the apex rapidly reduced to a blunt point bearing a large, subdorsal, oval opening with short, concealed spine. First segment with 1 exceptionally long, stout, ventrolateral bristle; second segment with 1 moderately stout, long bristle.

Head, anterior aspect: Face below antenna one-third the head width. Subepistomal area moderately large, a little oblique, nearly plane and bare. The face is pubescent, everywhere covered with long, matted, coarse or bristly pile which becomes slender bristles over the epistomal margin and which reach to the apex of the proboscis. Front pollinose, with a large tuft of stiff, bristly pile opposite the ocellarium and continued as a narrow band down the ocular margin. The vertex is deeply excavated, the ocellarium very large and wide bearing depressed ocelli and a pair of moderately long, stout bristles and a few other shorter hairs. Central eye facets considerably enlarged.

Thorax: The pleuron is chiefly appressed micropubescent except on the anterior mesopleuron and sternopleuron. The mesonotum bears similar micropubescence laterally and narrowly along the suture and in front of the scutellum and on a posthumeral band. The pile of the mesonotum is rather sparse and short, flat appressed and setate; acrostical elements are poorly differentiated; all the pile transversely in front of the scutellum is a little longer and bristly. The lateral bristles consist of 1 notopleural, 4 or 5 supraalar with other more slender elements above the postalar region. The postalar region has 3 bristles; the scutellar margin 1 or 2 short pairs of slender bristles and some bristly hairs. Scutellum thick, convex, pubescent with bristly pile. Propleuron anteriorly and posteriorly with bristly pile. Pronotum with 7 pairs of quite stout bristles; mesopleuron posteriorly with 1 stout bristle and with coarse, appressed pile dorsally and posteriorly and continued on to the sternopleuron anteriorly and posteriorly. Pteropleuron with a tuft of stiff hairs; hypopleuron pilose; metapleuron with a vertical band of 10 or 15 long bristles. Metanotal slopes micropubescent only. Lateral metasternum pilose; ventral metasternum chitinized, at most with 3 or 4 hairs; postmetacoxal area membranous; tegula with bristles. Prosternum not dissociated, slightly narrowed posterolaterally.

Legs: All the femora are greatly thickened, the hind pair is especially thickened subapically and its pile is rather short appressed and setate for the most part. The bristles on the hind femur consist of 1 dorsomedial and 1 dorsolateral apical and 1 dorsolateral subapical; also 1 lateral at the outer fifth and 2 ventral bristles, 1 at the middle and 1 beyond; the ventral pile is fine, moderately long, scanty and erect. Posterior tibia with a scanty, erect, ventral fringe and a brush of setae distally; its bristles consist of 4 dorsal and 3 or 4 lateral elements. Middle femur with 1 stout bristle anteriorly at the outer third, 1 weak bristle posteriorly near the apex; its tibia has 3 or 4 weak dorsal bristles, 3 rather short, posteroventral bristles excluding the apical bristles, and with 3 or 4 moderately long, ventral bristles. Anterior femur without bristles; its tibia has 4 or 5 dorsal and 3 or 4 weak posterior bristles. All tarsi end with stout, moderately sharp claws, long pulvilli and long, stout, bladelike empodium.

Wings: The marginal cell closed with a long stalk; the anterior branch of the third vein is sigmoid and ends well above the wing apex and is strongly arched at the base. First and fourth posterior cells and the anal cell each closed with a long stalk. Middle vein of the end of the second basal cell moderately long. Ambient vein either absent or greatly reduced; alula large.

Abdomen: The abdomen is broad and robust and wider than the thorax. The pile is extremely short and setate and appressed and very little longer on the lateral margin; the first tergite has 4 or 5 short, lateral bristles, none on the remaining tergites. In the male there are six tergites. Females with six tergites, the seventh and eighth tergites in the female completely concealed beneath the sixth. Male terminalia partly rotate, rather small and largely concealed beneath the seventh tergite, which in turn is concealed by the sixth tergite. The cavity is small but open along the true ventral aspect. Gonopod with a slender, terminal, toothed process. Female terminalia completely concealed from the lateral aspect.

Distribution: Nearctic: *Cerotainiops abdominalis* Brown (1897) [=*rufiventris* Curran (1930), *similis* Brown (1897)], *abdominalis atripes* McAtee (1919); *oma* Pritchard (1942); *wilcoxi* Pritchard (1942).

Systropalpus, new genus

FIGURES 289, 640, 1242, 1251, 1606, 2075, 2088

Type of genus: *Systropalpus aurivulpes*, new species.

A large fly, related perhaps to *Hyperechia* Schiner, but separated by the wide, transverse vertex; both the ocellarium and its bristles minute; the proboscis is longer and greatly thinned from a lateral aspect. The dense mystax suggests *Dasyllis* Loew from which again it is distinct in the character of the vertex and proboscis. While other genera have the second palpal segment open and excavated, in this fly it is remarkably wide and leaflike. The claws are moderately blunt and the first posterior cell open. Length 15 mm.

Head, lateral aspect: The head is long. The face is unusually long and very strongly produced especially on the lower half, which juts considerably forward but is rounded anteroventrally; the upper face is very slightly concave just at the point where the lower face begins to extend forward. The occiput is extremely prominent below due to the oblique anterior recession of the eye which begins very close to the top of the eye. Upper half of postocciput with 5 or 6 weak, slender, reddish bristles, lower occiput with considerable pale brownish yellow, almost white pile. The proboscis is directed straight forward; it is shovellike and strongly flattened dorsoventrally, the base is very strongly swollen laterally in profile, the immediate apex still more thinned and with a few hairs above and below. The base bears some long, fine pile. The palpus consists of a large, leaflike structure with sharp, medial ridge; the apical portion bears numerous, rather long, reddish golden hairs, the basal segment if present is exceedingly short but its presence is indicated by the fact that this short, arched base to which the leaflike portion is attached is covered with numerous, long, fine yellow hairs. The antenna attached at the upper fifth of the head, directed obliquely upward and elongate; the first two segments are moderately lengthened, the first 1½ times as long as the second. The third segment is 1⅓ times as long as the first two and is somewhat wider through the middle. The end of the third segment bears a small opening and minute, concealed, yellow spine.

Head anterior aspect: The face is nearly one-third the head width and with parallel sides; it is brownish yellow, the pile and bristles entirely golden. The sides of the face above the gibbosity bear matted downwardly depressed pile; the middle of the face is bare and shining on the upper half and not pubescent. The lower gibbous part of the face has dense, very long, slender, reddish golden bristles, which lie adjacent to one another and extend as an oblique tuft to the end of the proboscis. The vertex is slightly excavated but transverse or only very slightly raised across the middle; the ocellarium is characteristically minute and scarcely raised from the surrounding area and bears a pair of weak, rather short, erect, yellow bristles. Sides of the front without pile or bristles.

Thorax: The mesonotum rather convex from in front but very gently convex from the side. There is an acrostical row of 7 or 8 scanty, appressed, yellow hairs only on the anterior half. There is a submedial, bare stripe and the lateral portion has scanty, short, fine, appressed pile and golden pollen over a brownish yellow background. The lateral bristles are short and weak and red. They consist of 1 notopleural, 1 supraalar, 2 still shorter postalar, 2 pairs of quite short scutellar bristles, and 1 mesopleural bristle. Humerus and pronotum without bristles. Upper mesopleuron with fine, dark pile, upper middle of sternopleuron with 2 fine, long, yellow hairs and an oblique, creased ridge. Pleural pollen reddish sepia; hypopleuron pollinose only; metapleuron with numerous, long, extremely fine, black, upwardly bent hairs. Metanotal slopes strongly bullose and without pile.

Legs: Hind femur a little elongate, strongly thickened on the outer half but reduced at the immediate apex and more gently narrowed at the base; hind femur densely, short, appressed, golden pilose with a little longer, suberect, yellow pile below on the lateral margins just before the middle; the outer third bears a short, stout, yellow, microtuberculate, subventral bristle. There is 1 medial subapical bristle and 1 medial basal bristle, no dorsal elements even at apex. The hind tibia stout, without bristles except the apex, where there are 2 weak dorsal elements, 1 lateral, 2 longer ventrolateral bristles. The anterior and middle femur are also stout, the latter with 1 short, posterodorsal subapical, the former with 1 minute, subapical bristle. Middle tibia with 2 moderately long, moderately stout, reddish bristles and 4 at apex below; also with 2 weak dorsal and 2 anterior bristles. Anterior tibia with 2 short, red, posterior bristles on the outer half, 5 or 6 very weak, short anterodorsal, and a ventral row of fine, reddish golden pile which is rather long basally; the apex is unmodified. Anterior basitarsus quite short; all the tarsi short and thick; the first segment is barely longer than the next two. Claws rather short, strongly curved at apex and rather blunt without being conspicuously blunt; pulvilli nearly as long as claws, empodium three-fourths as long as claw and laterally flattened.

Wings: The marginal cell closed with a long stalk. The first posterior cell is strongly arched downward, scarcely narrowed at apex but the whole cell long and narrow. The upper and lower veins closing discal cell make virtually a right angle. The vein closing the fourth posterior cell is straight. Anal cell closed with short stalk; alula rather wide; ambient vein complete.

Abdomen: The abdomen is robust and rather convex; the distal half is subcylindrical; the sides are parallel; the abdomen is not as wide as the thorax and not quite as wide as the mesonotum. Sides of first tergite with 3 very stout, spinous, yellow bristles; sides of second to fourth tergites with 2 stout, dark red bristles. Sides of remaining tergites only with quite long, dense, reddish golden, appressed pile. Seven tergites visible, the last 3 bear dense, posterior fringes of increasingly long, reddish golden, appressed pile. Tergite 7 appears to have a long, medial, upcurled tuft of about 20 reddish yellow bristles which actually proceed from the right side of the terminalia. Male terminalia very large, conspicuous, elaborate and half rotate.

Distribution: Ethiopian: *Systropalpus aurivulpes*, new species.

Systropalpus aurivulpes, new species

A robust, strikingly colored fly with conspicuous, reddish golden pile.

Length 15 mm. Male. Head: Face brownish yellow, the pile and bristles entirely golden. Facial gibbosity bears dense, very long, slender, reddish golden bristles, which lie adjacent to one another and extend as an oblique tuft to the end of the proboscis. Pile of first segment of palpus fine and yellow, with longer, reddish golden pile on the large, leaflike, second segment. Bristles of upper occiput weak, slender and reddish.

Thorax: Except for three black stripes, the ground color of mesonotum is brownish yellow to reddish in color with golden pollen. There is a wide, black, medial vitta; this stripe ends shortly before the scutellum and is linearly furcate anteriorly. Sides of mesonotum have a black stripe, which is not divided at the suture and which ends before reaching the humerus and again shortly before the postalar callosity, where it becomes strongly oblique. Pleuron black or nearly so with the pollen reddish sepia; metapleuron with numerous, long, fine, upwardly bent, black hairs.

Legs: The legs are reddish orange, the first four more yellowish and with all tarsi and tibiae tending to be slightly more brownish yellow than red; coxae black with greyish to yellowish white pollen. Pile of hind femur appressed and golden, the ventral pile yellow; bristles yellow. Bristles of first four legs red.

Abdomen: The first four tergites black with coppery or violet reflections and the last three brownish orange to yellow with dense, posterior fringes of increasingly long, reddish golden, appressed pile; the right side of the terminalia bears a long, medial, curled upward tuft of some 20 reddish yellow bristles.

Type. Male, Ethiopia; in the Zoologische Staatssammlung, Munich.

Genus *Proagonistes* Loew

FIGURES 222, 634, 1255, 1264, 2091, 2096, 2134

Proagonistes Loew, Öfvers. Svenska Vet.-Akad. Förhandl., vol. 14, p. 367, 1858. Type of genus: *Proagonistes validus* Loew, 1858, by monotypy.

Extremely large flies of robust, yet elongate form. With few exceptions they are characterized by dark, sepia wings which may also have a bluish reflection. The stout but unswollen legs and the wings are both exceptionally long. Face with a very prominent, rounded gibbosity, which bears numerous bristles and stiff hairs. Proboscis directed forward as a general rule with a quite sharp apex and usually curved upward. The base is always strongly swollen, the second palpal segment flared, flattened and excavated. Length 20 to 50 mm.

Head, lateral aspect: The eye is of normal width but sometimes short and greatly flattened. Occiput prominent and swollen on the lower portion of the head but very short and obliterated on the upper third. Pile of occiput quite dense, long, and coarse; such pile may continue to the vertex, obscuring a deeper row of slender bristles; or rarely the pile is reduced or eliminated along the lower third of the eye and is replaced by stout bristles, of which there may be 7 to 12 pairs. Proboscis stout, sharply pointed at the apex which is often curved slightly upward; the base is characteristically very strongly swollen, the ventral surface bears a strong, medial groove; the apex is depressed dorsoventrally, at least for a short distance. A low dorsal medial ridge is present on the basal half, or sometimes extending over the middle; the apex usually on the outer third bears abundant, stiff, dorsal and ventral pile, the base below has numerous, long, stiff hairs. Palpus of two segments, the first quite short, more or less fused, the second long, flattened, flared with the open, hemicylindroid surface laterally containing a number of stiff bristles. Antenna attached at the upper sixth of the head and moderately elongate. The first segment is longer than the second; the third segment oval, flattened in the middle, 2 to 3 times as high as the second and about 1½ times as long as the combined length of the first two. At the apex of the third segment is a pit bearing a concealed spine. First segment with numerous, long, stiff bristles below, and some shorter bristles above, occasionally reduced in numbers. Third segment with 2 or 3 long, stiff bristles above and below and shorter bristles laterally and medially. This segment may bear a single, quite long, stout, dorsal bristle.

Head, anterior aspect: The face below antenna is a third the head width and divergent below. Subepistomal area moderately large, slightly oblique, concave and bare and more or less enclosed by the palpus. Face shining and bare, except for a narrow line of pubescence along the eye margin, or rarely extending over the lateral third of the face. The gibbous portion bears a great many long, stiff bristles extending outward as far as the end of the proboscis; the sides and upper portion may have only stiff, bristly hairs. Front quite short with numerous, stiff bristles laterally or sometimes with not more than two. The surface is bare, the vertex moderately excavated with a low ocellarium carrying across the middle a single pair of long, stout bristles or more commonly a transverse row of several bristles of varying length. Eye facets only moderately enlarged.

Thorax: The thorax is thinly pollinose; the mesonotal pile is scanty, fine, short, appressed and setate, with large, apilose areas, and there is present a distinct, wide band of similar, acrostical pile, which may be reduced to a single row. Dorsocentral elements become longer, though very fine at the level of the postalar region. Humerus with numerous, stiff, bristly hairs. The lateral bristles consist of 1 to 3 notopleural, 2 to 4 supraalar, 6 to 8 postalar, 3 to 4 scutellar bristles. Scutellum thick, convex, with a number of rather short setae on the disc; the rim is sometimes impressed, the base has a deep crease. Propleuron with dense, thick, coarse pile below and with similar, not bristly pile on the postpronotum. Sternopleuron, hypopleuron, mesopleuron, and pteropleuron with abundant, long pile; the upper posterior mesopleuron with 3 or 4 stout bristles and an additional, weaker bristle in the extreme upper corner. Metapleuron with a vertical band of numerous, long, slender bristles; metanotal slopes micropubescent only, in 16 species examined, and in *Proagonistes apicalis* with 12 to 15 fine hairs. Tegula with bristles. Lateral metasternum is densely long pilose; ventral metasternum chitinized and long pilose, and isolated both anteriorly and posteriorly; postmetacoxal area membranous; the lateral metasternal chitin meets in the middle without being fused apically, and is widely separated by half the width in *P. apicalis* and in *P. igniferum*. Prosternum not dissociated.

Legs: The legs are unusually long; they are stout without being swollen, though in *Proagonistes igniferum* the hind femur is very slightly swollen dorsally. The pile is dense, short, appressed dorsally but becomes longer and erect on the ventral surfaces of the anterior femur. The following bristles are present: On the hind femur laterally there is 1 near the base and 1 near the apex, with a corresponding bristle on the opposite side; 1 laterally at the apex, and 1 medially a short distance from the apex; the hind tibia bears 5 weak, slender bristles dorsomedially, 2 to 5 stronger bristles dorsolaterally, and 5 quite slender bristles ventrolaterally; a brush of setae is present ventrally on the outer fifth but medially from at least the middle. Hind basitarsus as long as or longer than the next 4 segments. Middle femur with 1 stout bristle posteriorly beyond the middle, 1 anteriorly near the apex, which may be doubled; this tibia has 6 anterodorsal, 4 posterodorsal or it may be the bristles are reduced to 4 dorsal bristles only; there are no posterior bristles and basally several long, fine, bristly hairs. Anterior femur without bristles, but with long, bristly hairs ventrally; this tibia has 8 to 10 fine, short, anterodorsal bristles, a like number of posterodorsal and with 2 or 3 long, stout, posteroventral bristles. The apex bears stout bristles but no spine; basitarsus stout, as long as the next two segments. All tarsi end in sharp claws, strongly bent at the apex, long, spatulate, thin pulvilli and stout, bladelike, basally swollen empodium.

Wings: The wings are rather slender and distinctly longer than the abdomen. The marginal cell is closed; the anterior branch of the third vein ends well above the wing apex; the posterior branch ends far behind the apex. First posterior cell narrowed throughout its length but widely open; the anterior crossvein is at or near the basal third of the discal cell. The fourth posterior cell is closed with a long stalk; lower end vein of the discal cell drawn sharply back to the base of the wing; anal cell always closed and stalked.

Abdomen: The abdomen is elongate and as wide as the mesonotum, or sometimes wider, with nearly parallel sides; it is rather strongly tapered from the end of the fourth tergite in the female. In the male there are seven tergites, the seventh is a third as long as the sixth and divided in the middle. In some cases the seventh tergite may be wholly concealed. Seven tergites present in the female, the seventh half as long as the sixth. Pile of abdomen quite short, dense, flat appressed and setate, thick and longer laterally. Sides of the first tergite with 2 or 3 stout bristles; sides of the second tergite with two of the remaining tergites with a single stout bristle, sometimes reduced and difficult to detect among the pile; but always conspicuous and accentuated on the first two segments, they are sometimes absent on the remainder and the numbers may be reduced to a single bristle on the first and second segments. Male terminalia comparatively large, and conspicuous, rotate one-fourth to the right or left. The epandrium is short, undivided, or with short sulcus forming a shallow, bowl-shaped structure. Gonopod long and prominent with apical lobes. Female terminalia unusually long and slender and somewhat compressed laterally, the ventral plate of the eighth segment bears a posterior, bristle-bearing, slender lobe.

Distribution: Ethiopian: *Proagonistes apicalis* Curran (1927); *athletes* Speiser (1907); *austeni* Bromley (1930); *gigantipes* Bromley (1930); *leoninus* Bromley (1930); *mystaceus* Bromley (1930); *neavei* Bromley (1930); *pliomelas* Speiser (1907); *praedo* Austen (1909); *redimiculum* Speiser (1914); *saloides* Bromley (1930); *seyrigi* Timon-David (1951); *validus* Loew (1858); *vulpinus* Bromley (1930).

Genus *Dasyllis* Loew

FIGURES 266, 768, 1261, 1270, 2080, 2082, 2129, 2175

Dasyllis Loew, Bemerkungen über die Familie Asiliden, p. 20, 1851. Type of genus: *Laphria haemorrhoa* Wiedemann, 1830, by original destination.

Very large, robust flies of considerable breadth. The thoracic pile is rather short except marginally; the abdominal tergites have copious posterior fringes of appressed pile. The wings are often banded and strongly colored. The legs are densely, brushy pilose with few bristles. Further characterized by the greatly protuberant, lower face with its extremely dense, long, matted mystax hiding the pointed, shovellike, dorsoventrally compressed proboscis. These characters immediately distinguish it from the Nearctic flies of similar appearance belonging to *Bombomima* Enderlein. Some of the species mimic the large tropical bees very closely. Length 30 to 37 mm.; wing spread is 60 mm.

Head, lateral aspect: The face is exceptionally prominent and especially produced on the lower half. Beginning at the antenna it gradually increases in length, the profile nearly plane. The eye is rather short and strongly flattened anteromedially and equally developed above and below. The occiput is moderately developed, more prominent below. The pile of occiput is dense, rather long and fine, with extremely weak bristles near the vertex. The proboscis is of moderate length, not greatly produced beyond the face; it is oblique, pointed apically, very strongly compressed dorsoventrally and shovellike, with medial ventral groove; the apex dorsally and ventrally bears some short, stiff pile, the immediate base is rather strongly swollen and bears below tufts of long, curled hairs. Palpus of two segments; the first is excavated and rather short and flattened; the second is moderately long and also excavated and thinned, and bears fine bristles laterally, apically, and dorsally. Antenna attached at the upper fourth of the head. First antennal segment twice as long as the second. The third segment is as long or a little longer than the first two combined and bears a minute, apical, dorsal, concealed spine. The first segment bears a few, oblique, stiff hairs dorsally and 2 or 3 fine hairs ventrally. Second segment with fewer but similar hairs and 2 longer, bristly hairs dorsally at apex.

Head, anterior aspect: The head is quite wide. Face below antenna fully two-fifths the head width. The face has nearly parallel sides and the subepistomal area is nearly horizontal, completely concealed by the mystax. The face is without pubescence, is shining and largely apilose in the middle but with laterally and especially ventrally, a very copious mystax of dense, stiff pile which is shorter along the upper portion of the face, becoming progressively longer below and more dense, especially in the female. It may extend well below the apex of the proboscis. Males have a less abundant mystax in which the long hair is replaced by rather long, stout bristles. Front very short, polished and bare, with dense, fine pile laterally; the vertex is divergent and rather deeply excavated, as wide or wider than the face with steeply slanted sides; the ocellarium is small with very small ocelli and a pair of long, quite stout, divergent bristles. Eyes moderately enlarged centrally.

Thorax: The mesonotum and pleuron pollinose and dull. The pile of the mesonotum is very scanty, fine and short over the middle but a little longer laterally and in front of the scutellum. The medial pile is not clearly differentiated in the acrostical area. Humerus with 7 or 8 slender bristles; notopleuron with 4, supra-alar region with 8 in a single row; postalar with 8, scutellar margin with 7 or 8 pairs which are rather long. The scutellum is exceptionally thick and convex with a slightly impressed rim and abundant, fine and rather long pile. Propleuron with dense, long pile. Mesopleuron with some pile dorsally and posteriorly and with 2 or 3 stout, long bristles. Pteropleuron with a tuft of long, stiff, bristly hairs along the upper posterior margin. Hypopleuron and sternopleuron with fine pile; the metapleuron with a vertical band of long, slender, bristly pile. Metanotal slopes with abundant, stiff pile; tegula with short bristles. Lateral and ventral metasternum pilose. Postmetacoxal area membranous; prosternum not dissociated but greatly narrowed posterolaterally.

Legs: The femora are stout without being especially thickened; they bear abundant, moderately long, bristly pile. Bristles present as follows: on the hind femur there is 1 at the apex laterally, 1 sublaterally, 3 at the apex medially. This tibia bears 5 long, stout, dorsal bristles. Middle femur with 2 bristles anteriorly beyond the middle, 3 near the apex posteriorly; middle tibia with 8 or 9 very slender, dorsal bristles; 6 or 7 longer, slender, attenuate, posterior bristles and a like number of similar posteroventral bristles; anterodorsally there are 6 bristles, 2 of them beyond the middle being especially stout. Anterior femur with long, bristly hairs dorsally and several similar rows ventrally; the tibial bristles are very slender, long and attenuate, and consist of about 8 pairs in 2 rows dorsally, and a like number still longer below. Tarsal segments are short and end in stout, rather sharp claws bent at the apex, well developed pulvilli, and a stout bladelike empodium.

Wings: The wings are large, apically pointed but broad basally. The marginal cell is closed with a long stalk. The anterior branch of the third vein ends shortly above the wing apex, the posterior branch ends far behind the apex. First posterior cell open but greatly narrowed throughout. Fourth posterior cell closed with a long stalk; lower vein ending the discal cell is pulled backward so that the cell appears to end with one vein. Anal cell closed with a long stalk. Alula large; ambient vein complete. The wings are often banded with brownish black on the base and apex, leaving the middle part opaque, creamy whitish; combined with the bright colored fringes of pile on the abdomen, they copy certain tropical bees of the genus *Eulaema*.

Abdomen: The abdomen is very broad and only gently convex; in consequence it is largely flattened over the middle. The abdomen is considerably wider than the thorax. Pile of the abdomen dense but matted and flat appressed, forming bright colored fringes usually along the posterior margin; these are longer laterally only on the terminal segments. First tergite with 5 or 6 bristles laterally. Seven tergites are present in the male, the seventh as long as the sixth. Eight are present in the female, with the eighth well developed but greatly narrowed and narrowly conical. Male terminalia large and elongate, rotate one-fourth to the right but with a bulblike or bowllike ventral epandrium less conspicuous than is present in *Laphria* Meigen. Female terminalia slender, elongate, slightly compressed laterally, obliquely truncate with a fringe of fine terminal bristles. Eighth sternite produced posteriorly and at or near the apex beset with several long, stout bristles and long, stiff hairs.

Distribution: Neotropical: *Dasyllis albicollis* Bigot (1879); *croceiventris* Wiedemann (1821); *erythrura* Hermann (1912); *fascipennis* Macquart (1834) [=*praepotens* Macquart (1846)]; *haemorrhoa* Wiedemann (1830).

Ethiopian: *Dasyllis usambarae* Lichtwardt (1907).

Probably *Dasyllis usambarae*, described from East Africa, belongs in *Hyperechia* Schiner.

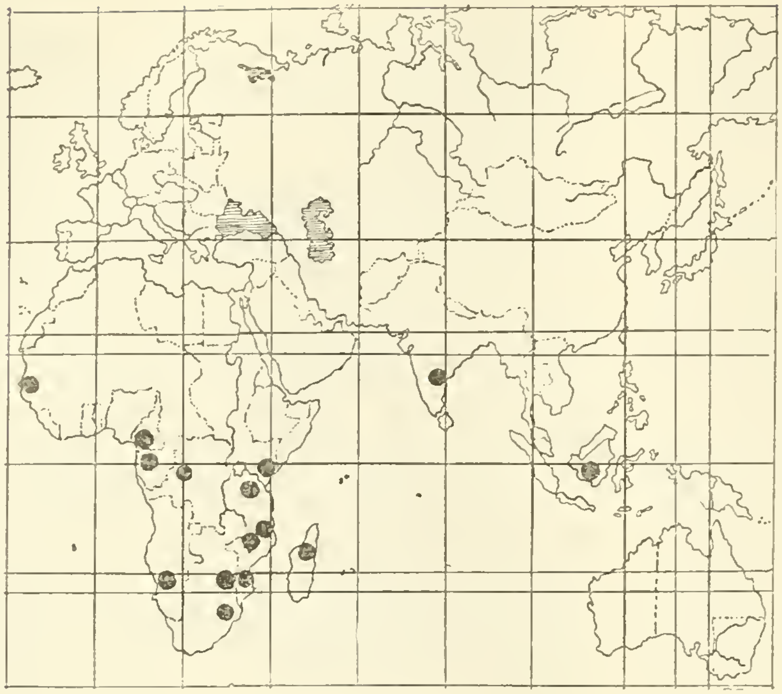
Genus *Hyperechia* Schiner

FIGURES 277, 277A, 643, 1258, 1267, 1580, 1609, 1812, 2093, 2130

Hyperechia Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 673, 1866. Type of genus: *Laphria xylocopiformis* Walker, 1849, by original designation.

Extremely large, exceptionally robust, broad flies which are also characterized by the dense, long, brushes of pile borne on the femora, tibiae and the more basal segments of the tarsi. There is a striking similarity or mimicry between these flies and the large carpenter bees belonging to the genus *Xylocopa*. The head is wide, the face exceptionally broad, the pile extremely short and appressed over the middle portion of the thorax and abdomen. The wing is exceptionally broad at the base, gradually tapering to a pointed apex. First posterior cell greatly narrowed throughout its length, closed with a short stalk. Length 22 to 35 mm.

Head, lateral aspect: The face is rather short on the upper half, gradually produced below until somewhat more prominent and sometimes with a shallow, transverse depression separating the lower, more convex portion of the face. The eye is rather short and wide, though not greatly flattened; it is characteristically narrowed ventrally due to the eye being gradually recessive anteroventrally. The occiput is prominent, except at the immediate vertex; it is more tumid medially and on the dorsal part slopes down to the eye margin. Pile of the occiput is dense and fine

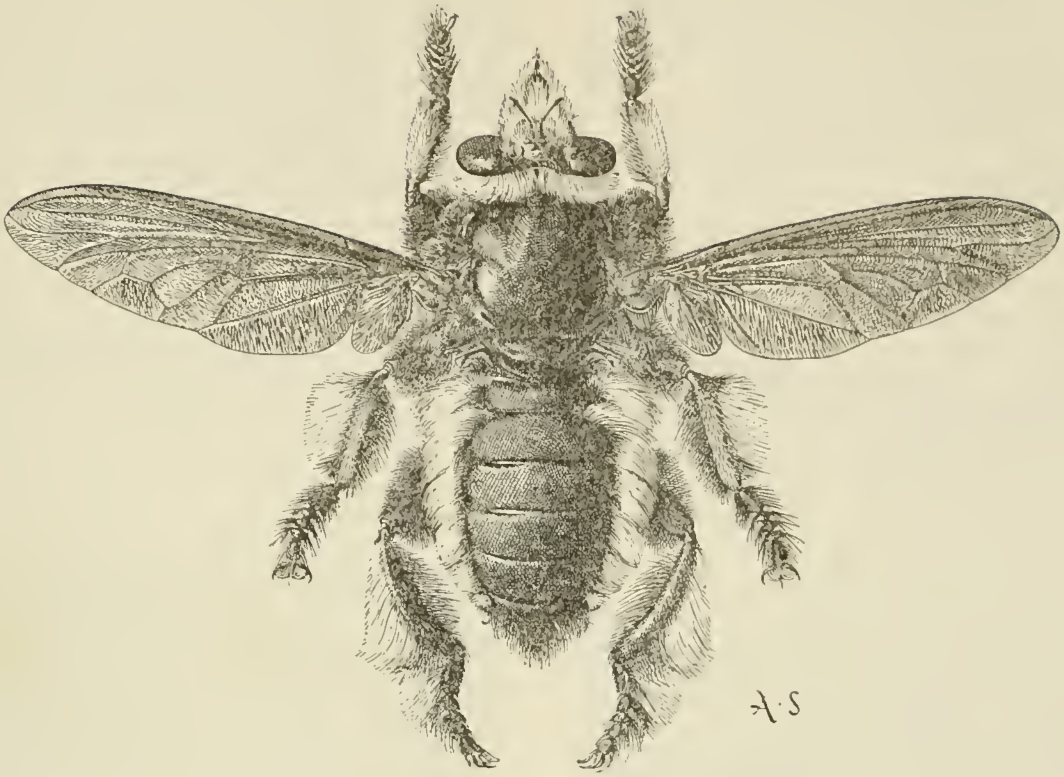


Text-Figure 22.—Pattern of distribution of the genus *Hyperechia* Schiner.

throughout but more dense ventrally. Bristles restricted to 4 or 5 pairs near the vertex hidden among pile. The proboscis is unusually short and exceptionally stout, extending beyond the face; however, it is exceedingly robust and greatly swollen at the base, strongly compressed dorsoventrally and with numerous, stout, bristly hairs on the outer fourth dorsally and ventrally and shorter ones at the apex. The base below has abundant, long, stiff pile; the ventral surface has a medial groove; a dorsal ridge is absent or vestigial. Palpus with the first segment quite small, short and more or less fused. The second segment is large, thinned and excavated and leaflike; the lateral surface bears bristles, particularly at the apex, the minute basal segment bears a tuft of long, coarse pile.

Head, anterior aspect: The head is quite wide. The face below the antenna is one-third the head width; sides nearly parallel. Subepistomal area short and small, well hidden by palpus and mystax. Face pubescent only narrowly along the eye margin or scantily on the ventral half. The face bears dense, matted, fine pile on the lateral third and the upper three-fourths in the type of genus, sometimes extending over the entire face. The lower, retreating portion and anterior, middle portion of the gibbous part of the face bears dense, long, weak bristles and stiff, long pile. The antenna is attached at the upper third of the head; the first segment is stout, a little longer than the second segment or about the same length; the second segment is small, knoblike distally, distinctly attenuate basally. Third segment elongate, rather slender basally, gradually widening to the middle and distally but little narrowed, except near the apex; or it may reach its greatest width near the apex, being strongly spindle-shaped basally. Apex with a rather large, truncate pit with concealed spine. Pile of first segment composed of rather fine hairs; second segment with a few, minute hairs dorsally and ventrally. Front quite short, shining, with rather dense, fine pile laterally but no bristles. Vertex moderately excavated; the ocellarium is small and low, the posterior ocelli typically hidden by a transverse, dense row of short pile; there may be 1 or 2 pairs of moderately long, stout bristles or a single pair of fine, short bristles, or none apparently in the type of genus, only the pile being present. Anterior ocellus flat, obsolescent, the posterior ocelli greatly reduced or wanting. Eyes rather strongly enlarged over a limited medial area.

Thorax: The thorax is pollinose, the mesonotal pile is usually extremely short and subappressed in the middle of the mesonotum and not obscuring the ground color. In a few species the mesonotal pile, though short and appressed, is quite dense, almost completely obscuring the ground color. The dorsum of the type of genus and in some others is shining and not pollinose; it is opaque and pollinose only in *Hyperechia consimilis*. Lateral mesonotum with weak, reduced, slender bristles: 3 to 11 on the notopleuron, 1 to 4 on the supraalar, 4 to 5, or none, on the postalar. The scutellar margin has 10 or 12 pairs of very long, slender bristles or only with a dense band of long, stiff pile. Scutellum thick, convex with impressed rim, fine pile and no pollen on the disc; the scutellum is not infrequently completely covered by a dense band of postmesonotal pile. Propleuron on all portions with dense, long, rather fine pile; upper and anterior sternopleuron,



Text-Figure 23.—*Hyperechia consimilis* Wood.

the dorsal and posterior mesopleuron, the pteropleuron, the posterior hypopleuron and a wide band on the metapleuron with dense, long pile. Mesopleuron without bristles; metanotal slopes micropubescent only; tegula is pubescent only or may have some short, stiff setae; lateral metasternum with only short, scanty pile; ventral metasternum with abundant long pile; postmetacoxal areas membranous.

Legs: All the femora and tibiae are especially stout; the hind femur is only moderately swollen and is plane ventrally; the hind tibia is proportionately rather more swollen and more or less arcuate, with concave ventral surface and strongly arched dorsal surface. All the femora and tibiae have a dense brush of long, stiff hairs on all surfaces but it is much longer on the dorsal and ventral surfaces; the dorsal surfaces of the first 2 or 3 basitarsal segments have a long, similar brush of pile in decreasing length. Bristles are virtually absent; all tarsi end in slender, sharp claws, chiefly bent at the apex, long, well developed pulvilli and slender empodium, bladelike but swollen at the base.

Wings: The wings are characterized by their basal breadth and apical pointed form; the marginal cell is closed, the anterior branch of the third vein is sigmoid, bent backward, ending a short distance before the wing apex; the posterior branch ends far to the rear. First posterior cell narrowed throughout its length, closed with a short or long stalk in 11 species before me. Fourth posterior and anal cells closed with a long stalk; alula quite large, extremely long but short at the base; ambient vein complete.

Abdomen: The abdomen is very broad and robust and only gently convex; it is shining, with extremely short, scanty, fine, setate pile; in some species the pile is almost absent on the last four tergites. In one group of species the first two or three tergites have dense mats of coarse, opaque, light colored pile obscuring the ground color. Lateral margins of all of the tergites characteristically with a dense fringe of long, rather fine pile. In the male six tergites are present; there may be a trace of the seventh but only laterally. Seven tergites present in the female, the seventh tergite from a half to two-thirds the length of the sixth. Slender bristles are present on the first tergite, obscured by pile and absent on remaining tergites. Male terminalia large and conspicuous; the basal, bowllike portion or epandrium is fused but has a distinct, medial seam throughout its length; this piece carries a more narrow, troughlike extension; males are rotate one-half. Female terminalia long, laterally compressed and truncate apically, bearing numerous, stiff hairs apically; the shorter ventral processes are sometimes hidden.

Distribution: Ethiopian: *Hyperechia albifasciata* Enderlein (1930); *bifasciata* Grünberg (1907); *bom-*

boides Loew (1851); *consimilis* Wood (1874); *floccosa* Bezzi (1908); *fulleborni* Grünberg (1907); *imitator* Grünberg (1907); *madagascariensis* Enderlein (1930); *marshalli* Austen (1902); *nigripennis* Wiedemann (1930); *nigrita* Grünberg (1907); *pellitiventris* Enderlein (1930); *rufibarbis* Fabricius (1805).

Oriental: *Hyperechia fera* Wulp (1872); *xylocopiformis* Walker (1849).

Country unknown: *Hyperechia robusta* Wiedemann (1828).

Thorpe (1927), Lamborn (1927), and Engel (1929) present a lengthy study of the larva and pupa of *Hyperechia bifasciata* and its relation to *Xylocopa* bees. The larvae are associated with the wood of trees.

This remarkable genus of conspicuous, bulky flies is an important element in the South African asilid fauna. Two species are known from Asia.

Tribe Ctenotini

Four genera of the subfamily Laphriinae are noteworthy for their elongate, 1-segmented palpus and their blunt claws. All four of these genera have a characteristic row of strong bristles along the dorsal margin of the proboscis. I propose the tribe Ctenotini for them. They are confined to the Palaearctic and Ethiopian regions.

KEY TO GENERA OF CTENOTINI

1. Palpus of 1 segment; claws blunt 2
   Palpus of 2 segments; claws normal; remainder of subfamily . . . . LAPHRIINAE
2. Middorsal margin of the elongate, laterally compressed proboscis with a conspicuous row of long, stout bristles . . 3
   Middorsal margin of proboscis without long, conspicuous bristles; a few, small setae or fine hairs may be present. Palpus composed of a single, elongate, clavate, bristly, rather swollen segment. First posterior cell closed and usually with a stalk 4
3. Large or very large, elongate, bare flies with long ungainly legs . . . . LAMYRA Loew
   Short, smaller, robust flies . . . . STIPHROLAMYRA Engel
4. Third antennal segment elongate, arched and concave dorsally; proboscis compressed laterally, obtusely truncate at apex . . . . PARACTENOTA Engel
   Third antennal segment shorter, constricted subbasally, dilated or swollen apically. Proboscis pointed apically. CTENOTA Loew

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Genus *Ctenota* Loew

FIGURES 243, 623, 1198, 1207, 1597, 2086, 2090

Ctenota Loew, Beschreibungen europäischen Dipteren, vol. 3, p. 135, 1873. Type of genus: *Ctenota molitrix* Loew, 1873, by monotypy.

Epilamyra Becker, *in* Becker and Stein, Ann. Mus. zool. Acad. Imp. Sci. St. Pétersbourg, vol. 17, p. 541, 1913. Type of genus: *Epilamyra coerulea* Becker, 1913, by original designation.

Flies usually of medium size and always stout, dark in color but with appressed, greyish or yellowish white pile, which gives them a characteristic appearance. Form robust and compact. They are readily distinguished by the very blunt claws, the dense, white mystax, which slants rooflike downward over the whole face, the slender, hyaline wings with narrow, closed, first posterior cell. Other characters are the absence of the alula and the frequent recession of the tips of the medial veins. Length 13 to 27 mm.

Head, lateral aspect: The face is short, nearly plane or very slightly convex. The eye is of medium length. Occiput only moderately developed but extending in uniform thickness nearly to the eye margin, from which point it slopes abruptly outward. The eye extends far beyond the occipital margin. Pile of occiput dense, coarse and long, and like all other pile whitish. It continues abundant on the upper portion of the occiput though a little shorter; weak bristles are present only on the upper third of the head. There are 5 pairs near the vertex and behind the vertex a patch of 7 or 8 bristles. Proboscis short and unusually stout and robust, to and including the apex. The base is strongly expanded from the dorsal aspect, the whole distinctly compressed laterally towards the apex. The apex has numerous, rather long, stiff, bristly hairs; these are confined to the immediate lateral apex and extend ventrally over approximately the apical sixth; base below with numerous, rather short, fine hairs continued ventrolaterally. Near the base is a well developed medial ridge disappearing beyond the middle. Near the dorsal margin on the outer third is a row containing as few as 4 or as many as 25 stiff, bristly oblique hairs. Proboscis directed horizontally forward, of moderate length and distinctly longer than the face. Palpus unusually large, robust and cylindrical, densely beset ventrally, dorsally and at the apex with rather long, pale bristles and with lateral bristles only basally. I can find evidence of only one segment; the remains of the first segment seem to be completely fused with the base of the proboscis, and behind the palpus on either side of the proboscis base is a patch of 8 to 10 quite stout bristles; no pore present.

Antenna attached at the upper fourth of the head, of medium length; the first two segments are short, the first is twice as long as the second, unusually robust and swollen chiefly ventrally; the second segment is quite short. The third segment is 1½ times as long as the first two combined, strongly swollen beyond the basal third, which is attenuate, rather slightly narrowed on the apical fourth dorsally, but strongly narrowed from below. This segment is obliquely truncate at the apex from a dorsal aspect; the apical pit carries a concealed spine.

Head, anterior aspect: Face below antenna a third the head width and slightly divergent below; subepistomal area rather large, strongly oblique and concave, concealed by the lateral bristles and mystax and the long palpus. Face unusually densely covered with coarse, opaque, whitish pile, matted and directed obliquely downward from beneath the antenna to the epistoma and continued to the eye margins and down the upper lateral half of the subepistoma. Pile on the upper face about half the length of that upon the lower face and narrowly in front of the epistomal margin the pile gives way to slender bristles of the same color. Front exceptionally short with a tuft of short, bristly hairs on each side in front of the ocellus and with the lateral margin on the outer third densely beset with short, appressed bristles. Vertex deeply excavated, wide with slanting sides, the ocellarium small, low and bearing minute ocelli; across the middle there is a single pair of quite stout, moderately long, divergent bristles together with some shorter, bristly hair. Anterior eye facets strongly enlarged.

Thorax: The pleuron is everywhere densely, minutely appressed pubescent; the mesonotum is bare, except in front of and on the humerus and narrowly along the sides. Pile of mesonotum rather dense, bristly, quite flat appressed, moderately long, opaque, and pale in color. Acrostical elements are not differentiated from the surrounding pile. Dorsocentral bristles differentiated only behind the suture where there are 5 or 6 pairs of quite slender, moderately long bristles, not always present. Humerus with numerous, erect, bristly hairs and perhaps with a few quite weak bristles depending on interpretation. In the type of genus the following complement of moderately long and stout, pale, lateral bristles is present: 2 notopleural; 3 supraalar; 1 or 2 postsupraalar; 2 postalar with additional short, bristly pile. There are 6 pairs of scutellar bristles, and also an irregular, submarginal band of similar, stout bristles and additional long, stiff, bristly pile. This pile is absent on the basal half. The basal half of the scutellum is flat, the whole scutellum quite thick with a rather slanting margin.

Propleuron with a dense, ventral tuft of long, stiff pile, the pronotum has an irregular band of similar, shorter pile and 6 pairs of moderate bristles. Postlateral pronotum with slender bristles and abundant, dense, short, bristly pile. The whole upper half of the mesopleuron only, the anterior and posterodorsal sternopleuron bear dense short bristles or bristly pile. Upper posterior corners of the mesopleuron with at least 2 exceptionally stout, rather short, pale bristles; all thoracic, leg, and abdominal bristles pale. Pteropleuron with some bristly pile; posthypopleuron with 3 or 4 long, erect, slender bristles and some more slender hairs. Metapleuron with a wide, oval patch of numerous, moderately stout bristles and bristly pile. Lateral slopes of the metanotum micropubescent only. Posterior lateral metasternum with abundant long, fine pile; ventral metasternum wide, chitinized, pubescent, but with only a few scattered, short, appressed hairs. Postmetacoxal area wide, short and distinctly membranous. Tegula with a fringe of short, stout setae or as many as 15 short, appressed bristles.

Legs: The femora are unusually stout and distinctly though rather moderately swollen to an equal extent on all pairs; most of the swelling contributed by the dorsal half; all surfaces on all the femora densely, flat appressed pilose; the pile is coarse, bristly, whitish, and opaque. In the type of genus the following complement of quite stout, rather short bristles is present: 7 ventrolateral on the hind femur; 3 dorsolateral bristles lying over the part of greatest swelling, with 3 similar dorsomedial and between them a single dorsal bristle; at the subapex medially a vertical row of 3 or 4 bristles, and medially and proximal to these 5 or 6 more slender bristles; there are also 4 or 5 ventral bristles. Hind tibia with a dorsomedial row of bristly hairs only, but with a dorsolateral and ventrolateral row of stout bristles, 6 in the former, 3 in the latter; ventral surface with a number of long, erect, bristly hairs on both sides; apical circlet of 6 bristles. Middle femur with 6 posterodorsal, 6 dorsal, both groups quite short and at the subapex a close-set group of 3 long, stout, posterodorsal bristles; anterior surface with 2 or 3 long, stout elements and ventral surface with 8 or more similar ventral bristles. Middle tibia with 6 anterodorsal, 7 posterodorsal, 7 posteroventral, 6 ventral bristles, the more distal ones longer, and at least 2 long, stout, apical, anteroventral bristles.

Anterior femur with 9 dorsal, the last 3 subapical and transverse, and with 2 posterodorsal bristles, 1 at the base and 1 at the outer third. Anterior tibia with 9 exceptionally stout, short, anterodorsal and 8 similar posterodorsal, besides 10 similar posteroventral bristles; below are 6 long, posteroventral bristles; ventral margin with 8 long, bristly hairs; apex without spine. All tarsi are short, all basitarsi unusually robust and a little longer than the next three segments. Claws are thick and unusually blunt; pulvilli long; the empodium long and exceptionally bladelike, extending beyond the claws.

Wings: The marginal cell closed with a short stalk; anterior branch of the third vein ends well above the wing apex; posterior branch ends far behind. First posterior cell uniformly narrow, closed with a rather long stalk. Upper end vein of the discal cell long and strongly oblique; discal cell long and narrow, concave posteriorly. The anterior crossvein enters the discal cell at the basal fifth. Second basal cell ends in 3 veins; the anal cell is closed with a long stalk, the alula large, the ambient vein may be present as far as the middle of the axillary lobe. Medial veins at the end of the discal cell often evanescent.

Abdomen: The abdomen is short and robust, not quite as wide as the mesonotum, the sides on the basal half parallel. There are seven tergites in the male, the seventh half as long as the sixth or slightly longer. Female with eight tergites, the seventh and eighth of equal length and about half as long as the sixth. Pile of abdomen rather abundant, flat appressed, coarse and opaque but more or less erect laterally on the sides of the first 3 tergites. The first 4 tergites laterally bear 2 or 3 bristles which may be continued on to the fifth tergite in some species. Male terminalia rotate and moderately large, with a short, bulblike, ventrally placed epandrium, deeply sulcate and bearing a long, lateral process. The gonopod is well developed laterally with upper and lower distal process and a short, medial process. There is no indication of a hypandrial plate; if present it is recessed beneath the seventh tergite. Female terminalia of moderate length, the dorsal portion compressed laterally; the tenth tergite is composed of two short, appressed flaps and with a short, protrusive extension ventrally with laterally compressed lobes.

Distribution: Palaearctic: *Ctenota armeniaca* Paramonov (1930); *coerulea* Becker (1913); *molitrix* Loew (1873) [=*ruficornis* Wulp (1899)].

I agree with Efflatoun (1934) that *Epilamyra* Becker is almost certainly the generic equivalent of *Ctenota* Loew, a genus apparently unknown to Becker, since in his description of *Epilamyra* he compares it minutely with *Lamyra* Loew, with no mention whatever of *Ctenota* Loew. I quote Efflatoun's remarks and also add a brief translation of the more pertinent parts of Becker's description of *Epilamyra*, which reads very much like a description of the material of *Ctenota* before me. Efflatoun (1934, p. 187) comments:

> I am not in a position now to say whether *Epilamyra* Becker is synonymous with *Ctenota* Loew, but I rather doubt that Becker's genus, distinguished merely by the shape of the female ovipositor, will be capable of holding its generic rank. . . . Engel, 1930 says that the genus *Epilamyra* has remained unknown to him but that on closer examination a male in Hermann's collection proved to be a giant specimen of *Ctenota molitrix* Loew.

Becker described the color of the abdominal pile of *Epilamyra coerulea* as bluish gray, whereas it is white in *Ctenota molitrix;* thus they may be two distinct species, although probably Efflatoun is correct in his supposition that Becker's species also belongs to *Ctenota* Loew.

The following comments are from Becker's description of *Epilamyra*, in translation:

> The present species *coerulea*, on which I erect the above genus shows us that the genus *Lamyra*, with which the four or five known species have until now been identified, possesses relatives with the general characters of *Lamyra*, which deviate in some essential points, so that they cannot well remain within that genus.
>
> Our species (*coerulea*) is distinct in two essential characters; first is the dense, flat appressed pile of the entire insect; second is the ovipositor which differs from that of *Lamyra*, which in *coerulea* has no special characteristic, but protrudes only as two small lamellae from the eighth end segment, and the eighth segment may be considered part of the ovipositor; at the end of a larger, cylindrical ninth segment (*Ringes*) hangs two lamellae perpendicularly downward, the lowest edge of which has four strong bristles.

Genus *Paractenota* Engel

FIGURES 234, 631, 1200, 1209, 2138

Paractenota Engel, Bull. Soc. Ent. Egypte, vol. 9, p. 141, 1925. Type of genus: *Paractenota efflatouni* Engel, 1925, by original designation.

Medium size or smaller flies in most respects similar to *Ctenota* Loew, except that the third antennal segment is elongate and curved upward a short distance on its attenuate subapical region; in consequence it resembles certain types of bees and parallels the development of the antenna in *Stiphrolamyra comans*. Like *Ctenota* these are robust, hyaline winged flies with greyish to yellowish white, opaque, dense, flat appressed pile providing an over all light colored appearance. Similarly, the face is everywhere covered with matted, long, feebly shining, whitish, bristly pile. There is a minute nodular spur near the base of the second submarginal cell. Length 13 mm.

Head, lateral aspect: The face is short, straight or very gently convex, nearly plane with the eye margin on the upper half; the lower portion is chiefly conspicuous through the posterior recession of the eye. The eye is rather long and unusually convex anteriorly. Occiput rather thick, especially ventrally and a little more prominent than in *Ctenota;* pile and bristles similar. Proboscis exceptionally stout and robust, including the apex, in every way similar to *Ctenota;* the dorsal middle fringe of bristles numbers only 5 and they are found just beyond the middle; in every other respect both proboscis and the one-segmented palpus are similar to *Ctenota*. Antenna attached at the upper fourth of the head, the first segment is perhaps a little longer than in *Ctenota;* the second segment is certainly shorter and not as high as long and is beadlike. The third segment is not quite twice as long as in *Ctenota*, thick, strongly convex below, distinctly concave above, occasioned by the apical third being curved upward, particularly the immediate apex. This segment is 2½ times as long as the combined length of the first two segments; the apex is distinctly truncate, the pit has a concealed spine. The first segment ventrally bears a single very long, blunt, stout, pale bristle, a shorter, more slender bristle and a number of still shorter, coarse, opaque hairs which extend basally along the lateral margins; the dorsal surface in the middle has some short, bristly hairs. The second segment has minute setae dorsally above and below.

Head, anterior aspect: The face below antenna is less than a third the head width and slightly divergent below. Subepistomal area rather large, strongly oblique, plane with the margins, which are rounded, the whole bare and less completely concealed due to the more scattered nature of the lateral, bristly pile. On the face the ground cover is sparsely micropubescent, the central elements which cover the upper face are stout and bristly in character, the whole distinctly appressed, especially in the middle. Front extremely short, similar to *Ctenota*, with on the hind margin opposite the antenna 3 or 4 rather stout bristles and other more slender bristles; all these are also present in *Ctenota* though perhaps less accentuated. Front, vertex and ocellarium similar to *Ctenota;* the ocellarium bears between the ocelli, a pair of very slender, long bristles, and lying outside them a pair of shorter, bristly hairs, and behind them 2 similar pairs. Anterior eye facets enlarged.

Thorax: The thorax is similar to *Ctenota.* All humeral pile is comparatively fine; on the lateral margins are 3 notopleural, 4 supraalar, 1 postsupraalar, and 3 postalar bristles; on the scutellum the bristles are more slender and irregularly intermixed with the equally long, dense, bristly pile. The lower posterior margin has bristly pile only; bristles are submarginal; nearly the whole of the disc bears fine, long, stiff pile. Pleuron similar to *Ctenota*, the upper corner of the mesopleuron with the bristles rather slender; lateral slopes of the metanotum micropubescent only; tegula with a fringe of long setae.

Legs: The legs are similar to *Ctenota*, the claws likewise quite blunt and all the tarsi short.

Wings: The wings are hyaline, differing from *Ctenota* only in the presence of a minute, nodular spur near the base of the second submarginal cell. The end vein of the discal cell is more nearly rectangular; the ambient vein is weak along the axillary margin.

Abdomen: The abdomen is similar to *Ctenota;* the pile along the posterior margins of the segments except laterally is reddish brown, extended forward in the middle and rather scanty; posteriorly it leaves on each tergite long, dull, dark, obtuse triangles. Sides of the first 5 tergites with 3 or 4 stout, pale bristles placed in a transverse row near the middle of the segment. Female terminalia similar, the ninth tergite as long as the eighth, with 2 flaplike, posteroventral, blunt lobes extended downward and compressed; the tenth tergite is composed of two short, rounded, appressed, flaplike lobes; the ventral element is a short, protrusive structure turned upward with dorsolateral, thin, rounded flaps, somewhat compressed towards the middle.

Distribution: Palaearctic: *Paractenota efflatouni* Engel (1925).

Genus *Lamyra* Loew

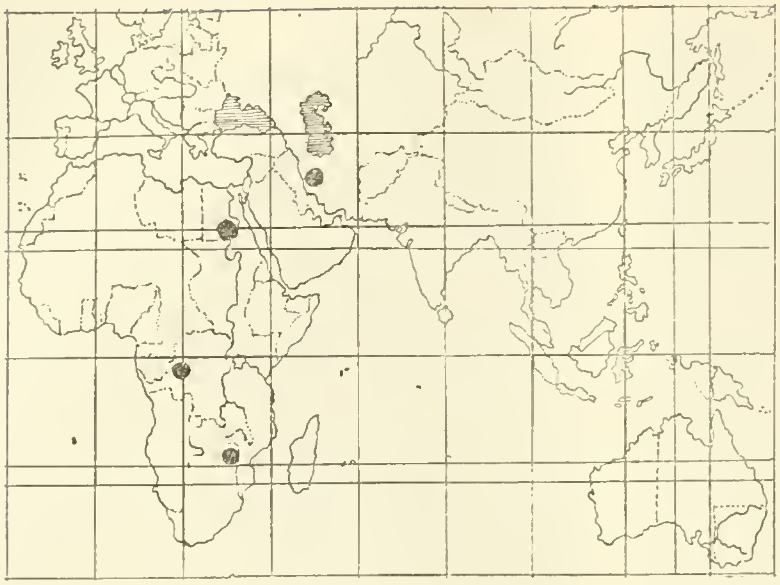
FIGURES 221, 272, 632, 1272, 1281, 1806, 2081, 2094

Lamyra Loew, Bemerkungen über die Familie Asiliden, p. 19, 1851. Type of genus: *Lamyra gulo* Loew, 1851, by original designation.

Quite large and comparatively slender flies with clavate abdomen. They are also distinguished by the greatly reduced pilosity, the extremely long legs and the long, very stout proboscis which is directed straight forward and carries a long fringe of dorsal bristles. Claws blunt. Length up to 40 mm.

Head, lateral aspect: The head is rather long. The face is slightly protuberant above, gradually becoming more extensive until quite prominent below where the face appears as an obtuse triangle. Eyes moderately recessive below. The anterior eye profile shallowly convex, the eyes somewhat flattened in the middle. The occiput is obliterated, beginning with the upper half, but rather thick and well developed below. Pile of occiput fine, long and scanty above and over the middle, but quite dense and tufted below; stout bristles begin near the bottom of the occiput and consist of about 17 on each side. The proboscis is unusually long, large and robust and scarcely tapered; the apex is obtusely rounded and bears stiff pile, the dorsal margin has a close-set fringe of long, stiff, curved, anteriorly-directed bristles which extend back to the basal third. The face is somewhat swollen, bearing a very little short, scanty pile below, and the proboscis is directed straight forward and is not quite twice as long as the head. Palpus of two segments, the first more or less fused with the base and dorsolaterally excavated, the second unusually stout, robust, and cylindrical and densely covered with stiff bristles dorsally and apically. The antenna is attached to the upper fifth of the head and is moderately long; the first segment is nearly twice as long as the second, the third is laterally compressed, tapered from the middle to the base and only gently tapered beyond on the ventral half. At the apex is a rather large, transverse, recessed opening bearing within a short, concealed spine. Pile of the first two segments scanty, the first with 2 or 3 slender, stiff bristles below.

Head, anterior aspect: The face below antenna one-fifth of head width and slightly divergent below. Subepistomal area rather large, and strongly oblique, concave and bare. Face with micropubescence only along the eye margin; it bears long, coarse pile laterally and has a dense band of extremely long but weak bristles, sometimes of 2 colors across the middle of the lower face margin. Sides of the subepistoma with a few long, bristly hairs. Front extremely short, bearing at the eye margin 5 or 6 stout bristles. Vertex rather deeply excavated, the ocellar protuberance unusually large but rounded and domelike and bearing a single pair of especially stout, long, divergent bristles; there may be a few short, stiff hairs behind the ocelli. Eye facets slightly enlarged centrally.



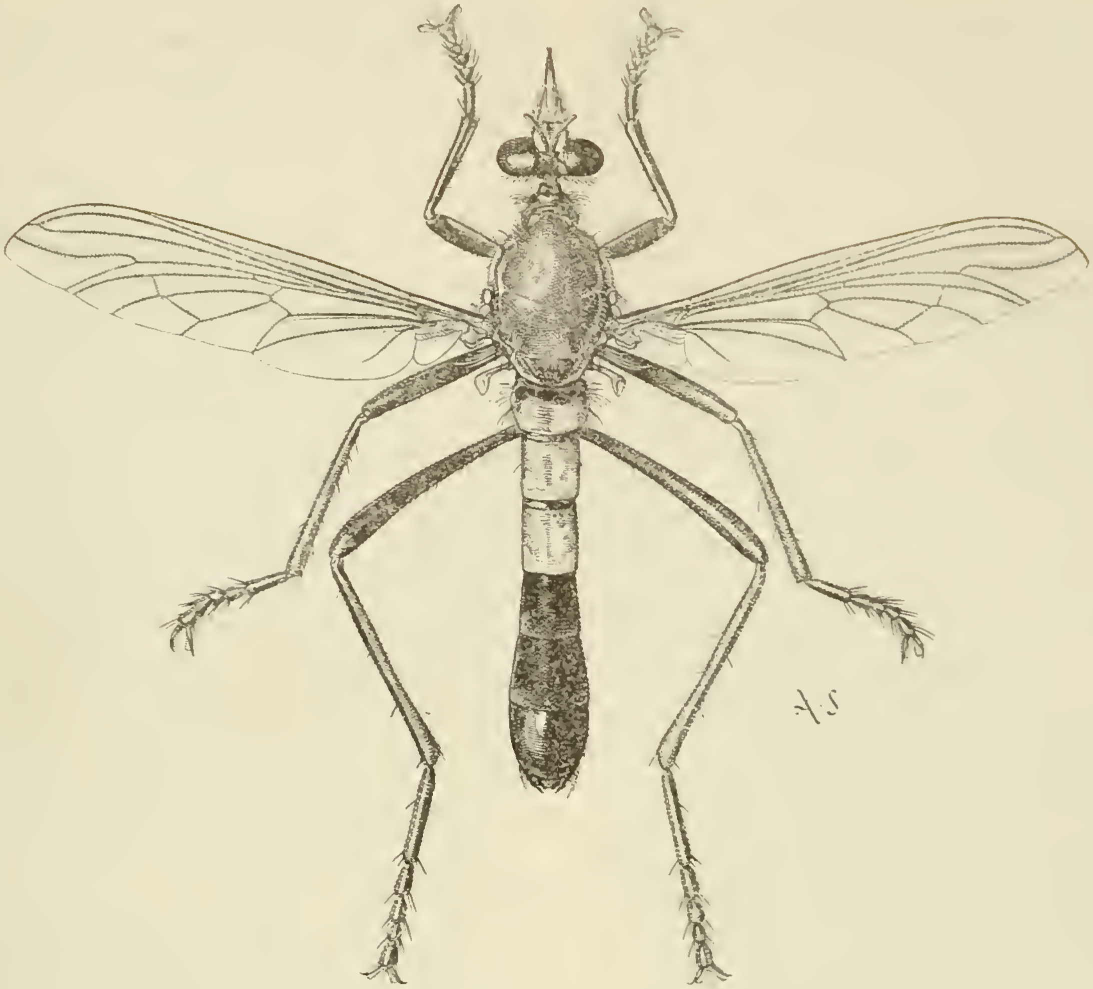
Text-Figure 24.—Pattern of distribution of the genus *Lamyra* Loew.

Thorax: The thorax is pollinose including the pleuron. Pile of mesonotum very scanty, fine and suberect. Humerus with a few, stiff hairs and 3 or more short, stiff bristles. The stout, lateral bristles are only moderately long and consist of 2 or 3 notopleural, 4 or 5 supraalar, with setae above the postalar region, 3 or 4 postalar, bristles, and besides 3 pairs of scutellar bristles. The scutellar disc has a few scattered hairs. Propleuron with an abundant tuft of long, fine hairs on the ventral part; the pronotum has 3 or 4 pairs of weak bristles. Upper and anterior mesopleuron with some short, stiff hair, posterior upper border of mesopleuron with 5 to 7 stout bristles; upper sternopleuron with a few hairs; pteropleuron without pile, hypopleuron with a few scattered hairs. Metapleuron with an irregular tuft of 8 or 9 long, stout bristles. Metanotal slopes bullose and micropubescent only. Metasternal slopes with a few scattered, long hairs; the metasternum with numerous, fine, long hairs; postmetacoxal area membranous. Prosternum not dissociated, but narrowed a little posterolaterally and with an odd anterior collar. Tegula pubescent only.

Legs: All the legs elongate; the hind femur is exceptionally lengthened and at least twice as long as the middle femora; the hind tibia is also long. The femora have rather closely appressed, dense, short setae and all bristles are rather short. The bristles of the hind femur consist of 1 medial at the apex, 1 at the middle, and 2 or 3 near the base, and 3 short lateral bristles near the base besides 2 longer lateral bristles near the middle; ventrally there are only short, appressed setae. Hind trochanters strongly swollen below, with 1 medial bristle and 1 ventral bristle. The hind tibia bears 3 or 4 weak dorsal, 1 rather stout ventral at the outer fourth; at the apex there are only 2 strong, lateral bristles. Middle femur with 2 bristles posteriorly near the apex and 2 at the base and 4 slender bristles ventrally on the basal half; middle tibia with 4 dorsal bristles which are short and weak, 1 stout posterior at the apical sixth and a similar bristle ventrally opposite it. The anterior femur has 7 or 8 weak, stout bristles ventrally, restricted to the basal two-thirds; its tibia has 5 or 6 short, weak anterodorsal bristles and an equal number of posterodorsal bristles; also 3 or 4 short posterior and 2 rather longer, slightly stouter, posteroventral bristles at the basal fourth and middle. Apex with 4 ventral and 2 dorsal bristles; apex without spine. All tarsi end in a well developed pulvilli, stout empodium, and extremely blunt claws gently curved from the base.

Wings: The wings are slender, elongate and subhyaline. Marginal cell closed with a stalk, first posterior cell narrowly open; the anterior branch of the third vein ends at wing apex. Fourth posterior cell closed and stalked; anal cell closed; alula large, ambient vein complete.

Abdomen: The abdomen is long and slender, widest apically and clavate and as long as the wing. Tergite one is unswollen. Pile of abdomen for the most part rather scanty, fine, and minute; it is more abundant and slightly longer posteriorly and everywhere flat appressed, except for short fringing hairs along the lateral margins. The sides of the first tergite have 2 stout bristles; the extreme lateral edge in the middle of the second to fourth tergite each with a weak bristle. Sternites with some fine, long, scattered pile. Male terminalia moderately large and protrusive with quite shallow, bowllike epandrium which may have a laterally posterior tooth or process. The interior structures are openly exposed to the dorsal aspect. The gonopods are not at all apposed but have a distally widened, toothed, posterior process; they tend to curve downward at the apex away from the epandrium. Female terminalia short; instead of being flat



TEXT-FIGURE 25.—*Lamyra gulo* Loew.

they are stout and quite robust, attenuate but rapidly swollen towards the base; dorsally they have a medial fissure.

Distribution: Palaearctic: *Lamyra pleskei* Becker (1913).

Ethiopian: *Lamyra gulo* Loew (1851); *versicolor* Ricardo (1925); *vorax* Loew (1858) [=?*nobilis* Walker (1851)].

Genus *Stiphrolamyra* Engel

FIGURES 225, 231, 257, 633, 1311, 1320, 1569, 1815, 2174

Stiphrolamyra Engel, in Lindner Die Fliegen der palaearktischen Region, vol. 4, p. 231, 1928. Type of genus: *Lamyra bipunctata* Loew, 1858, by original designation.

Small to rather large flies with reduced pile and usually characterized by the robust form, the long, slender wings with very narrow, open, first posterior cell. The end veins of the discal and fourth posterior cells are in nearly the same plane but may be offset by a short distance. They are distinguished from all related groups except *Lamyra* Loew and *Neophoneus* Williston by the dense tuft of bristles placed dorsally in the middle of the proboscis. From *Lamyra* they are distinguished by the distinctly short, broad form of the abdomen and the much shorter hind femur and tibia. From *Neophoneus* they are readily distinguished by the very blunt claws which they share with *Lamyra*, besides the robust apex to the proboscis. In addition, the terminalia of the female in *Neophoneus* are quite different. Length 12 to 25 mm.

Head, lateral aspect: The face is moderately produced above and a little more prominent ventrally, being nearly straight in profile, the ventral extension of the face is gradual and never as conspicuous as in *Lamyra*. The eye is less than usual length, varying from a little narrowed ventrally to rather markedly narrowed. The central anterior area is a little flattened and there is a distinct anteroventral recession on the lower fourth of the eyes which may be rounded or plane. Posterior eye margin plane through the middle, the eye rising above the occiput dorsally. Occiput comparatively short near the vertex, it remains short in some species or even obliterated on the dorsal half. In other species it is greatly thickened ventrally, the swelling beginning near the upper part of the head. Pile of occiput scanty on the upper portion or almost completely absent becoming only moderately abundant below and rather short, but long and fine in some species. There are 8 to 12 slender bristles on the upper part of the occiput. Proboscis directed horizontally forward, very robust and strongly swollen towards the base; the apex is blunt and more or less truncate, with a characteristic row of stout bristles on the dorsal surface near or just beyond the middle. The apex also has especially stiff pile, both dorsally, ventrally and at the tip; the base has only a few, long, fine, bristly hairs on either side. These flies would come under the group in which the proboscis is laterally compressed, although this is only evident towards the apex and never to a marked extent. Palpus unusually large, robust, cylindroid and elongate. There is a short, basal segment which is fused at least medially. Whole palpus covered with numerous, bristly hairs which are especially stiff along the dorsal margins, on the apex and beneath it.

Antenna attached at the upper fifth of the head or higher and ranging from moderate length to somewhat less than moderate length; in *Stiphrolamyra comans* there is a very long, curved antenna similar to *Paractenota* Engel, and the third antennal segment in this species is 3 to 4 times the combined length of the basal segments. Usually the first antennal segment is twice as long as the second, the second minute and short. The third segment is usually about 1½ times as long as the first two and very wide across the middle with apex attenuate with minute, visible spine. In some species this segment may be long oval. First segment with some long, stiff, bristly pile and 1 or 2 long bristles.

Head, anterior aspect: The face below antenna less than one-third the head width. Subepistomal area moderately large, oblique and concave. The face has abundant, long, rather fine pile on the dorsal half, becoming longer and more bristly below, with 1 or more rows of long, slender bristles above the epistoma and sometimes with the pile more or less appressed and directed sharply downward. Front quite short, with a band of bristly pile along the eye margins and some additional pile sublaterally. Vertex rather deeply excavated, the ocellarium moderately large, with slanting sides and with 3 or 4 pairs of long, slender bristles or bristly hairs or with a single pair of long, stout bristles. Ocelli reduced. Anterior eye facets enlarged.

Thorax: The thorax is thinly pollinose, the mesonotum sometimes entirely shining. Pile of mesonotum generally abundant and fine but flat appressed and sometimes suberect. Acrostical and dorsocentral elements absent; sides of the mesonotum with the following complement of weak bristles: 2 to 4 notopleural, 3 supraalar or with a row of 6 postalar and 4 or 5 bristles on the scutellar margin or with only fine, short, bristly scutellar hairs or with 3 or 4 pairs of slender, moderately long bristles. Disc of scutellum with scattered, short pile; the surface is rather flat but the rim slanting or convex. Propleuron with a tuft of long, stiff pile; pronotum without bristles. Mesopleuron with abundant, stiff pile on the whole upper half and 2 or 3 bristles posteriorly, or in some species with only a few microscopic, fine, short hairs and a single, distinct, posterior bristle. Posthypopleuron with several long, fine hairs; pteropleuron with 2 or 3 hairs; metapleuron with a band of 8 to 10 bristles, with additional bristly hairs. Lateral slopes of the metanotum micropubescent only; sides of the metasternum and the ventral metasternum with pile, the large postmetacoxal area membranous; tegula with setae.

Legs: The femora are distinctly thickened on all pairs, always dorsally; the hind pair has the swelling accentuated distally. The legs are comparatively short as compared with *Lamyra;* the hind femur and its tibia are a little longer than those of the middle pair. The following complement of bristles may be present: on the hind femur 2 weak dorsomedial placed on the outer fourth with below them 2 medial bristles and 2 or 3 rather long medial ones on the basal half. There are 2 dorsolateral, one at the outer fifth, 1 just beyond the middle; 3 lateral bristles; and 1 lateral quite close to the apex. The ventral surface has some scattered, moderately long, bristly hairs. Hind tibia with some fine, bristly hairs dorsomedially but with 3 or 4 short, stout bristles dorsolaterally, 2 ventrolateral bristles, and with several bristly hairs ventrally. Middle femur with 5 or 6 bristles posterodorsally, the outer 2 doubled, and with 1 moderately stout, anterior bristle on the outer fourth. Middle tibia with 4 short, moderately stout, anterodorsal, 4 or 5 very weak and short posterodorsal, 6 longer, stout, posteroventral, 4 fine, slender, ventral bristles, and 2 anteroventral bristles. Anterior femur with 6 or 7 posteroventral bristles and a like number of ventral bristles, chiefly basal. Anterior tibia with 6 anterodorsal, 7 short and weak posterodorsal, 4 longer posteroventral, and 3 or 4 posterior bristles. Basitarsi all short and robust, claws slender with very blunt apex; pulvilli long; the empodium long and bladelike.

Wings: The wings are usually quite slender. Marginal cell closed with a long stalk; anterior branch of the third vein is curved backward in the middle; first posterior cell is usually extremely narrow, but of normal width in some species; it is always open; the fourth posterior cell is closed with a long stalk, its end vein varies from nearly adjacent and plane with the upper end vein of the discal cell to being offset by fully the length of the upper discal end vein. Anal cell closed; second basal cell ends in 3 veins; the alula is large, the ambient vein complete.

Abdomen: The abdomen is robust, at most very slightly narrowed towards the base and only rarely with parallel sides. Males with seven tergites, the seventh tergite is two-thirds as long as the sixth. Females with the eighth tergite as long as the seventh or only half as long, the seventh sometimes also greatly reduced. Pile of the abdomen short, fine and appressed, sides of all of the tergites with distinct bristles ranging from 1 to 2 on the basal tergites to as many as 3 or 4 in other species. Male terminalia large and conspicuous, rotate one-half, with the lower portion expansive and bulblike. Female terminalia quite short with minute slender posterior lobes.

Distribution: Palaearctic: *Stiphrolamyra albibarbis* Engel (1928); *rubicunda* Oldroyd (1947).

Ethiopian: *Stiphrolamyra angularis* Loew (1858); *bipunctata* Loew (1858); *comans* Hobby (1939); *diaxantha* Hermann (1907); *rubra* Bromley (1935).

Tribe Atomosini

This tribe contains small, often abundant, dominant asilids of compact form and rather bare aspect. Almost world-wide in distribution, they appear to be scarce except in the Neotropical region, from which many genera are known. They are readily distinguished from all other Laphriinae, except 1 or 2 species of *Proagonistes* Loew, which are very large asilids, long in the legs, by the presence of a complete arch of chitin behind the posterior coxae. The lateral callosity of the metanotum appears to be without exception bristly but this is not an exclusive character within the subfamily, since there are at least 4 genera of Laphriini and 6 of Andrenosomini which likewise have such bristles. In those members of the genus *Proagonistes* with chitinized metasternum, there is a medial seam.

Two nearly equal groups may be separated, somewhat artificially perhaps, on the presence or absence of the subapical spine, or spinous bristle situated on the third antennal segment. Such a bristle is characteristic and often accompanied by a distinct excision in a number of genera; in rare instances it is so small that it will be detected with difficulty. The proboscis in this tribe tends to be short, sometimes even shorter than the face, small, cylindrical and truncate. In one small group the antenna is greatly lengthened; both first and third segments are lengthened, while the intermediate segment is reduced or even beadlike. This group includes *Cerotainia* Schiner, *Cyphotomyia* Williston, *Bathropsis* Hermann, and *Protichisma* Hermann. Three genera have the posterior cells reduced to four. The ventral prosternum is fully chitinized.

The adults like to rest on foliage in the sun and are even more frequently found on the bark of logs or the trunks of trees. Near human dwellings they often select the sides of outbuildings for watching posts. Larval habits are unknown.

KEY TO GENERA OF ATOMOSINI

1. Third antennal segment with a dorsal or subdorsal spine, sometimes found with difficulty, usually placed at or but little beyond the middle of the segment and with or without an accompanying excision but not arising at or close to the apex of this segment 2

No differentiated dorsal spine present on the third antennal segment unless at or almost at the apex. Third segment with or without a microsegment 24

2. Third antennal segment with a dorsal spine and the post metacoxal area membranous. Tergal bristles prominent . . . . PARATRACTIA, new genus

Third segment with dorsal spine and postmetacoxal area always with complete arch of chitin 3

3. Four posterior cells only 4

Five posterior cells present 5

4. Third posterior cell eliminated and the fourth posterior cell closed and stalked . . . . ATOMOSIELLA Wilcox

Third posterior cell eliminated and the fourth posterior cell widely open . . . . OPOCAPSIS Hull

5. Antenna exceptionally long and slender, at least 2 times the head length. First and third antennal segments share equally or nearly equally in the extent of elongation, the second segment remaining quite short and beadlike and the first segment unusually slender. Dorsal spine of third segment usually poorly differentiated and obscure and excision lacking. Face distinctly divergent from the base below to the vertex; posterior vertex excavated and flared 6

Antenna 1 to 2½ times the head length, or shorter; first and third antennal segments not of equal length; dorsal spine and excision well developed. Face width ranging from normal to very narrow; the vertex is at most moderately widened or maybe even narrowed; postvertex usually only moderately flared and excavated 9

6. Face, beginning at epistoma, and vertex only gently widened. Lateral wall of vertex vertical. Upper occipital bristles spinous. At least mesonotum and scutellum coarsely punctured. Scutellar margin without bristles. Abdomen slightly or moderately narrowed basally. PROTICHISMA Hermann

Face and vertex strongly widened; lateral wall of vertex slanting. Abdomen with parallel sides or narrowed posteriorly 7

7. Posterior margin of scutellum with a row of long, slender bristles . . . . CEROTAINIA Schiner

Posterior margin of scutellum with only 5 short, erect, stiffened hairs 8

8. Grossly punctate flies, bare, with pile reduced to microscopic, scattered setae; occiput bare except for 4 stout, laterally placed spines or spinous bristles. Anterior mesonotum prolonged into a conspicuous, rounded, laterally constricted hump . . . . . CYPHOTOMYIA Williston

Without exceptionally deep or conspicuous surface punctation; pile abundant, scattered, long and fine; occipital bristles moderately strong, weak or absent altogether . . . . CEROTAINIA Schiner

9. Face quite plane and high. Lower face considerably wider than upper face. Mystax and facial pile consists of long, coarse hairs. End of third antennal segment unmodified. Hind femur with a conspicuous row of quite long, rather stout ventromedial bristles, especially towards the base. Coarse punctures present on abdomen but not on thorax. Lateral tergal bristles strong and conspicuous. Wings beautifully banded 10

Not with the above combination of characters. Lateral tergal bristles present or absent. Apex of third antennal segment usually modified; if unmodified, the wings are not banded 11

10. Two submarginal cells . . . . Epaphroditus Hermann

Three submarginal cells . . Eoepaphroditus, new subgenus

11. Third antennal segment attenuate and drawn far out apically into a fine point with or without a bristly style . 12

Third antennal segment, if sharply pointed, narrowed, or attenuate apically, is never drawn out into an attenuate style. Sometimes blunt or truncate at apex 14

12. Attenuate part of third antennal segment densely short plumose, without apical bristle; supraoral bristles long, few and weak 13

Attenuate part of third antennal segment with only the usual microsetae, an apical bristle present or absent, the dorsal spine with accompanying excision. Supraoral bristles long, stout, more abundant; end vein of discal and fourth posterior cells in approximate alignment.
Atractia Macquart

13. Fourth posterior cell distinctly shorter than the discal cell; third antennal segment blunt, and ends in a minute, hairy spine . . . . Hybozelodes Hermann

Fourth posterior cell as long or longer than the discal cell; third antennal segment attenuate, and ends in a plumose arista . . . . Lophoceraea Hermann

14. Third antennal segment long, with blunt, truncate apex. Front considerably wider than face but vertex narrowed. Proboscis quite short, palpus minute. Pleuron, mesonotum, and abdomen very coarsely punctulate. Scutellum with only a pair of fine, stiff, marginal hairs. Tergal bristles quite absent except on first two segments and replaced by silky pile. End of abdomen strongly cupped. Pronotum with a collar of almost spikelike or spinelike bristles, but occipital bristles very weak.
Hodites, new genus

Third antennal segment not truncate; no collar of spines on pronotum and otherwise differing from above 15

15. Third antennal segment rather blunt at apex and exceptionally long and slender; the first segment short and at most 1 or 2 times as long as the short second segment; first posterior cell narrowed or closed; medial crossvein long, the end vein of discal and fourth posterior cells not aligned; the posterior branch of the third vein ends far back from wing apex; marginal cell wide apically and second submarginal cell strongly arched basally. Tergal, abdominal bristles well developed; scutellar margin with only stiff hairs . . . . Aphestia Schiner

Third antennal segment shorter or, if more than 2 times the combined length of the first two segments, the apex is slender. The scutellum bears stout bristles 16

16. The long, third antennal segment is attenuate. Scutellar margin with very long, stout, spinous bristles. Terminalia largely concealed but abdomen not cupped 17

If the scutellum bears long, stout bristles, the antenna is short 18

17. Vertex slightly but distinctly convergent at the top of head, and more narrow than front. Scutellum with 2 pairs of long spinous bristles. Tergites without bristles except on first tergite . . . . Lycosimyia Hull

Vertex divergent above. Scutellum with 1 pair of stout bristles. Tergites with distinct, characteristic bristles. Abdomen rather slender and punctate. Face quite narrow.
Clariola Kertész

18. Third antennal segmental spine properly apical, but with a moderately long, bluntly attenuate extension beyond, forming a cuplike incision in which this spine rests; rather large, not punctate, or at most very finely punctate, flies, the end vein of discal and fourth posterior cells in near or complete alignment; base of second submarginal cell strongly arched . . . . Cyanonedys Hermann

Apex of third antennal segment not conspicuously reduced in thickness beyond the spine 19

19. Proboscis rather strongly and distinctly extended beyond the face; face in the middle seventh of head width. Face very slightly visible in profile. Mesonotum and abdomen glassy smooth, not punctate. Incision of third antennal segment situated not far from apex . . . . Othoniomyia Hermann

Proboscis slightly or not at all extended beyond the face . 20

20. Face strongly produced forward throughout both above and below and nearly plane. Face from the frontal aspect wide, in the middle more than one-fourth the head width; face distinctly divergent from the base below to the vertex; proboscis slightly extended beyond the face.
Protichisma Hermann

Face very short except near the epistoma; face of moderate width or quite narrowed; sides usually parallel 21

21. Terminalia, both male and female, completely concealed in lateral aspect by the cuplike development of the last tergite. Abdomen strongly and coarsely punctate; the mesonotum and upper pleuron usually with fine punctures. Abdomen never narrowed basally; shorter and more robust flies. The face ranges in width from a fourth to a seventh of the head width. Antenna elongate but not attenuate; the spine of the third segment is near or just beyond the middle of the segment, usually with accompanying incision. Front expanded but vertex convergent . . . . Atomosia Macquart

Terminalia exposed in lateral aspect; rarely punctate, often more slender flies 22

22. Face in the middle tenth to fifteenth of total head width; width of vertex 2 or 3 times the face width; face also wider at epistoma; fourth posterior cell usually a little longer than discal cell. Proboscis pointed at apex; occiput with only fine setae; first antennal segment with a long, strong bristle; occiput overgrown by the eye posterodorsally on the upper fifth of head. The anterior branch of the third vein emerges some distance beyond the end of the discal cell . . . . Anoplothyrea de Meijere

Face of normal width for the Atomosini, a sixth of head width or wider 23

23. Abdomen not punctate; lateral margin "corrugate" or with "staircase offset" from segment to segment. Fourth posterior cell of nearly the same length as the discal cell. All the femora swollen and the ventral bristles of the hind femur tuberculate. Lateral tergal bristles long and prominent. Epandrium (ninth tergite) inverted, long oval and bulblike, especially obtusely rounded at base. Gonopod well developed, with the inner processes extending a little beyond and each with a double hook, dorsal and ventral at apex. Hypandrial element quite short so that a medial trough or cavity is present as in higher Laphriinae . . . . Adelodus Hermann

Abdomen coarsely punctate and only slightly "corrugate." Fourth posterior cell distinctly shorter than the discal cell and never parallel. Hind femora moderately swollen and the ventral, bristly hairs not tuberculate. Lateral tergal bristles quite weak, if present. Fourth posterior cell considerably shorter than discal cell. Epandrium short, truncate, with semicircular apex. Ninth sternal elements V-shaped, with steep sides, not cleft medially and without differentiated, lateral gonopod or medial, troughlike cavity; inner processes obtuse at apex.
Bromotheres, new genus

24. Antenna comparatively short, the third segment wide. Spine placed close to apex, or a short distance back from the narrowed apex and without accompanying excision. No microsegment present. Abdomen and thorax nowhere punctate. Face narrow, its sides nearly parallel but the front and vertex divergent above. Abdomen narrowed at the base, more slender and elongate. Generally not punctate flies. Scutellar margin with either bristly hairs or with long, stout bristles, the rim smooth or impressed. Fourth posterior cell often longer than the discal cell.
Eumecosoma Schiner

Antenna long and slender. Fourth posterior cell as long or even shorter than the discal cell. Spine of third antennal segment near the middle. Face narrow and sometimes exceptionally reduced in width, but vertex divergent . . . 25

25. Apex of third antennal segment with a microsegment. Microsegment short or long and microsetate as normal, or densely short plumose or with long pubescence 26

No microsegment present. Third antennal segment obtuse or bluntly pointed, without special or exceptional pile and with or without apical spine 35

26. A distinct, conspicuous spine present at apex of the third segment above the microsegment, or more rarely borne on the base of the microsegment; rarely reduced to a short, blunt spine immediately before the microsegment 27

No obvious spine present at the end of the third segment or on base of the microsegment 34

27. Four posterior cells only . . . . Chymedax Hull

Five posterior cells present 28

28. The spine is clearly attached to the base of the microsegment. Third antennal segment falcate, long and slender, arched, the base wide, the ventral surface from base to apex with drooping membrane. Microsegment rather long but obtusely rounded, the basal spine conspicuous. Abdomen with parallel sides and with fine, scattered punctures and tergal bristles. Face quite narrow; vertex divergent; occipital bristles spinous. Scutellar bristles exceptionally long and stout . . . . Catonomyia, new genus

The spine, sometimes minute, sometimes long, is attached clearly to the end of the third antennal segment . . . 29

29. Ventral surface of hind femur with distinct spines and spinous bristles 30

Ventral surface of hind femur with at most some slender bristles and bristly hairs 31

30. The microsegment at end of third antennal segment is cuplike, with enclosed spines. Abdomen comparatively broad and somewhat flattened, or long oval, at most finely punctate. Hind femur a little swollen, the ventral spines with tubercles . . . . Rhathimomyia Lynch Arribálzaga

The microsegment at the end of the third antennal segment consists of a virtually bare, short, fleshy style with a spine at its base. Hind femur with distinct, conspicuous, stout, sharp, tuberculate, spinous bristles. Abdomen not long and oval; spines beneath hind femur arise from tubercles . . . . Dissmeryngodes Hermann

31. Male face with golden scales of pile and first antennal segment scarcely longer than the second. Female face with a few, long, slender bristles. Abdomen with punctures and 7 tergites; mesonotum smooth. First antennal segment a little longer than second segment; no tergal bristles . . . . Despotiscus Bezzi

Face not dimorphic. Face pile consists of hairs and bristles. If scales are present rarely, they are present in both sexes and the first antennal segment is about twice as long as the second 32

32. The microsegment is flat, comparatively short and blunt at apex. Third segment microsegment attached usually with a downward angle and a distinct characteristic spine emitted from the end of the third segment above the base of the microsegment. The base of the third segment is bent and attenuate; first segment without conspicuous bristle; occiput without strong bristles but tumid and strongly developed everywhere except at vertex. Face nearly plane, narrowly visible to the antenna. Abdominal pile usually flat appressed . . . . . Atoniomyia Hermann

The microsegment is long, the apex either blunt or finely attenuate 33

33. Third segment microsegment half as long as the third segment or longer, and densely long pubescent, a spine at apex of the third segment; proboscis very small, quite blunt, cylindrical and no longer than the face; antenna exceptionally long and slender . Dichaetothyrea de Meijere

Third segment microsegment narrow and attenuate, rather sharply pointed; antenna scarcely longer than the face, the supraoral bristles quite stout, the upper occiput with 4 spikelike spines; proboscis very short but quite stout . . . . Opeatocerus Hermann

34. Face with scales and slender bristles. No obvious spine present at end of third antennal segment, although a minute bristle may be present or absent. Face in profile evident only below and not prominent.

Goneccalypsis Hermann

Face without scales. Third segment microsegment held nearly straight; occiput almost absent in profile, with 6 or more stout bristles; first antennal segment bristles are long and stout; face prominent only below and there produced . . . . Löwinella Hermann

35. Face and front with parallel sides, the vertex not wide and not flared posteriorly. Face plane and antenna set on a slightly produced front. Occiput well developed in the middle and below, with stout bristles. Antenna quite long and slender, with parallel sides; third segment especially long and first segment 4 or 5 times as long as second segment. Thorax and abdomen coarsely punctate. Apex of third antennal segment with a short spine, well hidden in a deep and dense but rather short, stiff pile. Scutellum with only short, bristly hairs . . . Bathropsis Hermann

Face divergent above and front and vertex still wider; the postvertex strongly excavated and flared 36

36. Antenna exceptionally long and slender, the first and third segments especially elongate 37

Antenna not of exceptional length and usually almost as long as the head or a little longer 38

37. Grossly punctate flies, bare with pile reduced to microscopic, scattered setae. Occiput bare except for 4 stout, laterally placed spines or spinous bristles. Mesonotum developed anteriorly into a strong hump . . Cyphotomyia Williston

Without exceptionally deep or conspicuous surface punctation; pile abundant, scattered, long and fine; occipital bristles weak or absent altogether . . Cerotainia Schiner

38. Fourth posterior cell longer than the discal cell; face totally plane with eye, above and below; proboscis longer than face, bluntly pointed, comparatively slender; fourth posterior cell stalk short. Third antennal segment rather stout, nearly twice as long as the combined length of the first 2 segments and the apex bluntly pointed.

Oidardis Hermann

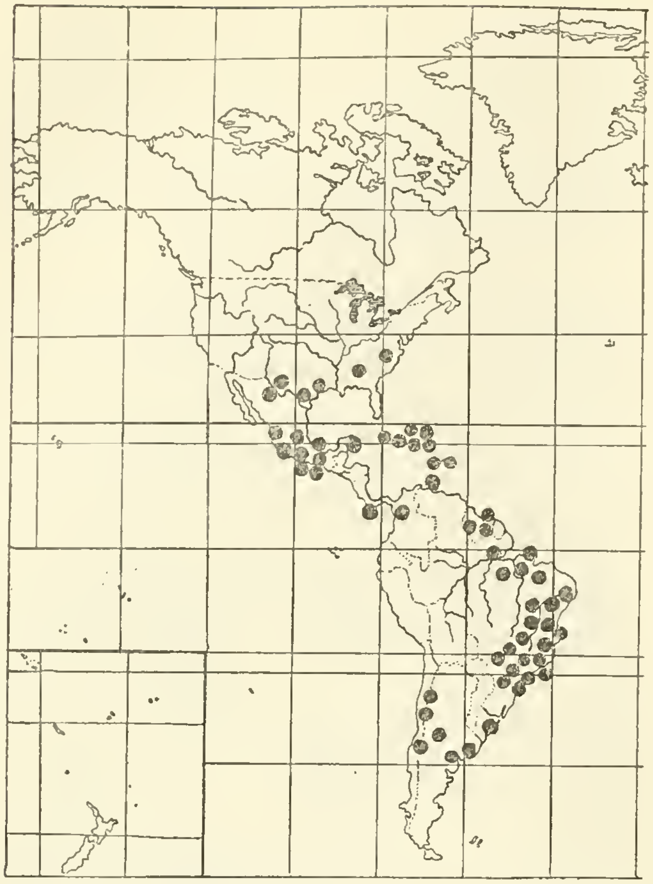
Fourth posterior cell shorter or of the same length as discal cell 39

39. Third antennal segment with a large, oblique, apical pit which contains a short, stout spine. Face short, plane near the antenna, but the face is wide and the front is slightly divergent to the vertex. Proboscis obtuse, no longer than face; eye posteroventrally recessive, the occiput correspondingly thick . . . . . Automolina Hermann

Third antennal segment simple at apex. The anterior branch of the third vein ends above the wing apex. A dorsal apical spine on the third antennal segment is present or absent 40

40. End veins of discal and fourth posterior cells nearly aligned, the cells of nearly equal length. Front, face and occiput with exceptionally abundant, long, stiff, bristly pile. Dorsal subapex of third antennal segment with a distinct spine . . . . Lamprozona Loew

Fourth posterior cell much shorter than the discal cell. Face with only 2 or 3 long, bristly hairs above and a like number on the oral margin. Apex of third antennal segment without a segregated, dorsal spine. Often pale colored flies (Laphriini) . . . . Cenochromyia Hermann



Text-Figure 26.—Pattern of distribution of the genus *Atomosia* Macquart.

Genus *Atomosia* Macquart

Figures 223, 229, 637, 1309, 1318, 2110, 2121, 2122, 2123, 2153, 2156

Atomosia Macquart, Diptères exotiques, vol. 1, pt. 2, p. 73, 1838. Type of genus: *Atomosia incisuralis* Macquart, 1838. Designed by Coquillett, 1910, the fourth of 6 species.

Cormansis Walker, Insecta Saundersiana, vol. 1, pt. 2. p. 154, 1851. Type of genus: *Cormansis halictides* Walker, 1851, by monotypy.

Small, short and robust flies of bare aspect and short, scanty, appressed pile. The antenna is elongate and always slender. Several abdominal tergites usually bear lateral bristles and the apex of the abdomen in both sexes is strongly cupped, concealing the genitalia. The coloration is always dark, the legs sometimes pale. It is separated from its near relative, *Cerotainia* Schiner, by the convergent vertex. Length 5 to 12 mm.

Head, lateral aspect: The head is short, the face very short, except on the lower fourth, where it is slightly elevated and also rendered more conspicuous because of the recession of the eye. Height of face reduced on account of the long, oblique, convex subepistomal area. The occiput gradually widens from the upper fourth to the bottom of the eye because of the gradual recession of the eye; occipital pile composed of fine, scattered hairs ventrally, weak bristles above the middle of the head and with a small cluster of moderately stout bristles on each side behind the postvertex. Proboscis short, robust, tapered from the base and the base sometimes strongly swollen. The proboscis does not extend beyond the face and in some species may not reach to the epistoma. Palpus minute, especially the first segment; the second segment is slender and cylindrical, with a few apical, ventral, and lateral bristles. Antenna attached slightly above the middle of the head, elongate, longer than the head and sometimes nearly twice the head length. The first segment is 1 or 2 times as long as the second, usually slender. The third segment is 1½ to nearly 2 times the length of the first two segments; it bears at or beyond the middle a dorsal incision of varying depth carrying a distinct spine. The apex is rounded. The first two segments have stout, bristly pile ventrally and sometimes have a fairly long bristle ventrally in the middle of the first segment.

Head, anterior aspect: The head is as wide as the thorax. The face is comparatively narrow with parallel sides, densely micropubescent with coarse, scattered, bristly hairs on the upper part and sometimes a submedial, vertical row of 2 or 3 bristles of varying sizes. Epistoma with or without a row of longer, stout bristles. Similar, more slender elements are usually continued down the side of the subepistoma. Front strongly divergent and more strongly convergent at the vertex. Sides of the front slanting, leaving below a shallow, longitudinal groove. Front pubescent with a row of stiff hairs near the eye margin and sometimes weak bristles. Ocellarium small but with vertical sides and a pair of stout bristles and sometimes additional postocellar bristly hairs.

Thorax: The mesonotum is low and rather long, shining, with comparatively abundant, curled, appressed, short, bristly pile. Acrostical elements are not differentiated, the dorsocentral elements are very fine but longer and easily overlooked. Lateral bristles are stout, with the following complement: 1 notopleural, 1 supraalar, 1 or 2 postalar, and 1 or 2 pairs on the scutellar margin. Anterior pronotum with 5 or 6 pairs of stout or slender bristles, the remainder of propleuron with stiff or bristly pile including the cervical sclerite. Prosternum fused and continuous; whole of the mesopleuron and the upper sternopleuron and sometimes the anterior hypopleuron with pile. Metapleuron with a vertical band of remarkably long, slender, distally curved bristles and bristly hairs. Lateral metanotal callosity with an extensive patch of both stout and weak bristles. Metasternum pilose throughout, postmetacoxal area with a complete chitinized arch. Posterodorsal corner of mesopleuron with a stout bristle.

Legs: All the femora are stout and comparatively little swollen; the hind femur is a little more swollen distally. The pile is scanty, fine, and subappressed dorsally. The ventral surface of the hind femur and hind tibia each have a dense, conspicuous, somewhat medial fringe of rather long, fine, erect pile. Femoral bristles usually extremely weak, but long. Hind femur generally with a pair of remarkably long, ventromedial, basally stout bristles near the base. Middle femur with a ventromedial and ventrolateral row of very fine, long bristles. Two ranks of tibial bristles are characteristically exaggerated and longer. Tarsal bristles are stout. Hind femur with a stout, long bristle laterally at the outer third. Middle femur with a similar bristle anteriorly. Hind tibia with 4 or 5 weak, dorsal bristles; 2 or 3 long, stout, lateral bristles; 3 ventrolateral, and 2 long ventral bristles. Middle tibia with 4 long, anterodorsal, 4 short, weak, dorsal bristles, 6 or 7 weak, posterior bristles, 3 long, stout, posteroventral bristles, and 2 to 6 ventral bristles of varying size. Anterior tibia with 4 or 5 weak, dorsal bristles, with bristly hairs posteriorly and 3 long, slender, posteroventral bristles. Claws slender and sharp, strongly bent at the apex; pulvilli and empodium well developed.

Wings: The wings are immaculate, the marginal cell closed with a long stalk; the anterior branch of the third vein is strongly arched at the base and ends at or just above the wing apex; the posterior branch ends far behind the wing apex. First posterior cell closed and stalked or narrowly open. Fourth posterior cell closed and stalked. End vein of the discal cell nearly aligned with the end vein of the fourth posterior cell and both in the same plane. Anal cell closed. Alula short, the ambient vein generally ends at the beginning of the third posterior cell.

Abdomen: The abdomen is robust, rather short and nearly as wide as the thorax; it is strongly convex with parallel sides, the surface deeply punctate. The sixth tergite forms a large, rounded, downcurved, cuplike structure, with ventral emarginate rim in which the seventh tergite and the terminalia are enclosed. Pile of abdomen abundant, fine, setate and subappressed with longer, erect pile along the lateral margin in some species. First tergite with 4 to 6 stout bristles laterally; second tergite with 3, and sometimes several remaining tergites with 1 or 2 bristles. Both male and female abdomens with six tergites. Both male and female terminalia are quite small. The male terminalia are rotate one-half, quite concealed and tucked in beneath the tergites; the epandrium is broad, but not very long, the dorsal proctiger forms two broad, triangular, distally rounded plates. Gonopod narrow, the hypandrium short and triangular. The cavity of the genitalia is open. The seventh and eighth tergites consist of a concealed, narrow band of chitin, the proctiger is short but broad and pilose.

Atomosia constitutes a very characteristic element of the Neotropical asilid fauna. A few species extend into the United States but those described by older authors from the Old World, while listed here for the present, almost certainly will require reassignment to other genera. Hermann (1907) described a species from South Africa; this species is now in *Goneccalypsis* Hermann. There are a few South American genera, like *Hypenetes* Philippi, that also have species in Africa; similarly a very few Ethiopian genera like *Rhipidocephala* Hermann and *Nusa* Walker have a few species in South America. While *Cormansis* Walker has been considered a synonym of *Atomosia*, I consider this doubtful. The type species of *Cormansis halictides* is from India. It may possibly be identical with *Löwinella* Hermann, but is not likely to belong to *Atomosia*.

These species divide into those which, like *Atomosia puella*, prefer association with the bark of trees and logs and those like *Atomosia sayi* found entirely on the tips of twigs or resting on leaves.

Distribution: Nearctic: *Atomosia glabrata* Say (1823) [=*rufipes* Macquart (1847)]; *melanopogon* Hermann (1912); *mucidoides* Bromley (1951); *puella* Wiedemann (1828) [=*pygmaea* Macquart (1834), *?echemon* Walker (1849)]; *punctifera* Hermann (1912); *sayi* Johnson (1903).

Neotropical: *Atomosia affinis* Macquart (1849); *andrenoides* Bromley (1934); *anonyma* Williston (1901); *appendiculata* Macquart (1846); *argyrophora* Schiner (1868); *armata* Hermann (1912); *barbiellinii* Curran (1935); *beckeri* Jaennicke (1867); *brevicornis* Macquart (1838); *cerverai* Bromley (1929); *coxalis* Curran (1930); *cyanescens* Rondani (1848); *danforthi* Curran (1935); *eupoda* Bigot (1878); *fredericoi* Carrera (1952); *frontalis* Curran (1930); *geniculata* Wiedemann (1821); *hondurana* James (1953); *incisuralis* Macquart (1838); *limbata* Macquart (1834); *limbiventris* Thomson (1869) [=*limbativentris* Lynch Arribálzaga (1880)]; *lineata* Curran (1930); *macquarti* Bellardi (1861); *maestrae* Bromley (1929); *metallescens* Hermann (1912); *metallica* Bromley (1929); *modesta* Philippi (1865); *mucida* Osten Sacken (1887); *nigroaenea* Walker (1851); *nuda* Hermann (1912); *panamensis* Curran (1930); *parva* Bigot (1856); *pilipes* Thomson (1869) [=*pilosipes* Lynch Arribálzaga (1880)]; *pubescens* Bromley (1929); *pusilla* Macquart (1838); *rica* Curran (1935); *?scoriacea* Wiedemann (1828); *selene* Curran (1935); *sericans* Walker (1860); *setosa* Hermann (1912); *similis* Bigot (1856); *soror* Bigot (1878); *tenuis* Curran (1930); *tibialis* Macquart (1846); *unicolor* Macquart (1838); *venustula* Lynch Arribálzaga (1880); *viduata* Wiedemann (1819); *xanthopus* Wiedemann (1828).

Oriental: *Atomosia halictides* Walker (1851).

Genus *Lycosimyia* Hull

FIGURES 285, 1291, 1300

Lycosimyia Hull, Ent. News, vol. 69, p. 102, 1958. Type of genus: *Lycosimyia carrerae* Hull, 1958.

Related to *Atomosia* Macquart but with more narrow face, reduced mystax, smooth mesonotum, comparatively elongate proboscis and 4 pairs of very long, spikelike bristles on the scutellar margin. Length 10 mm.

Head, lateral aspect: The head is comparatively short, the face is quite plane with the eye on the upper half and evident in profile below only because of the retreating eye; the face is plane and slightly retreating on the lowest part. The subepistoma is small, concave, and a little oblique. The occiput is moderately developed at some distance from the eye margin but only along the middle and below. It is concave and sunken on the upper eye corners. On the lower half it bears fine pile; weak bristles in the middle become sharp, stout, straight, and black above; there are 9 pairs on each side. Proboscis extends a little beyond the face, is bluntly rounded at apex with anteriorly directed circlet of hairs. Base below with only a few, short, stiff hairs. The palpus is moderately large, composed of two segments; the second is cylindrical, longer than the first, and bears 6 slender, short bristles. The antenna is attached at the upper third of the head and is moderately elongate. The first segment is nearly twice as long as the second and the third is twice is long as the first two combined. First segment slender, with 2 or 3 setae at the apex dorsally and more setae ventrally over its whole length; and along the middle 2 moderately long, black bristles. The rather beadlike second segment has setae above, and 2 rather long bristles and 2 or 3 shorter bristles below. Third segment slender, attenuate only near the apex, which ends in fine, short hairs and no microsegment; dorsally in the middle it bears an incision and pale spines.

Head, anterior aspect: The head is not quite circular; the width of the head is approximately 1¼ times the height. The face is quite narrow, about an eighth the head width, with nearly parallel sides; it is very slightly more narrow in the middle than it is beneath the antenna or below. The surface has unusually fine and dense appressed, silvery micropubescence. On the upper part on each side in a vertical row are 3 quite long, comparatively slender, wiry, black bristles and 2 other shorter ones along the sides of the subepistoma, and 4 bristly hairs in the middle of the epistomal margin. Front small, a little wider than the face with longitudinal submedial fossa; it is silvery pubescent and has 3 fine, bristly hairs laterally. Vertex narrowed and moderately excavated; the small, high, narrow ocellarium has vertical sides, large anterior ocellus and between them is a pair of long, moderately stout bristles.

Thorax: The thorax is short and only moderately high. Surface of mesonotum is densely appressed setate and with a dorsocentral row of fine, longer hairs anteriorly and equally fine hairs posteriorly. Lateral bristles are long but slender; they consist of 1 notopleural, 1 supraalar, 2 on postalar callosity and the margin of the polished, mostly bare, smooth, slightly convex scutellum bears 4 quite long, basally stout, spikelike reddish bristles; scutellar margin creased. Metanotal callosities with abundant, coarse pile. Pronotum with only stiff hairs. Whole pleuron pollinose. Upper posterior corner of the mesopleuron at the bottom of the anterior basalare with a long, rather stout, reddish bristle. Metapleuron with a band of long, bristly hairs and similar hairs on the hypopleuron. Postmetacoxal area with a wide, complete band of chitin; prosternum broadly fused.

Legs: The hind femur is somewhat longer and at most slightly thickened distally. All the legs bear unusually loose, scanty, fine, subappressed pile dorsally, which is even more scattered on the tibia. Hind femur with 4 long, slender, ventrolateral bristles, distributed along the middle and toward both base and apex it has 1 or 2 additional, shorter, weaker, bristly hairs. The ventromedial surface has 3 similar elements as strong as any on the outer margin; they are confined to the basal third; this surface also has a scattered, ventromedial fringe of long, erect hairs. Hind tibia with more conspicuous bristles which are also slender; there are 3 quite long, lateral elements, 2 ventrolateral elements in the middle, and 4 equally long, distally curved ventral elements besides a medial fringe of long pile. Medial setae confined only to the apex. This tibia is comparatively slender; the tarsi are also slender though the last 3 segments are more slender. Middle femur with on the outer fourth a rather stout anterior bristle and below it an anterior and posterior fringe of long, bristly hairs or very slender bristles. Middle tibia with strikingly long, basally stout, finely attenuate, reddish bristles. There are 3 anterodorsal bristles, 1 anterior basal, 2 posteroventral at basal and apical thirds, and 2 similar ventral elements. Also there is a posterior fringe of 5 more slender, shorter bristles. Anterior femur only with ventral bristly hairs and 2 or 3 similar, slender hairs dorsally. This tibia, however, like the middle tibia, has a conspicuous fringe of 3 or 4 exceptionally long, anteroventral and posteroventral reddish bristles, and 4 shorter, more slender, dorsal bristles. Claws slender, sharp, chiefly bent at apex; pulvillus well developed; the empodium is long, bladelike and very fine apically.

Wings: The wings are nearly hyaline, everywhere villose except in the basal cells which have only small patches. Marginal cell closed with a comparatively long stalk. Anterior branch of the third vein ends barely above the wing apex; the posterior branch ends a considerable distance behind. The second posterior cell is narrowed to half its maximal width; fourth posterior cell and anal cell each closed with a short stalk. Posterior crossvein almost wanting. Anterior crossvein short, entering the discal cell before the basal fourth. Alula narrow, the ambient vein ends with the second posterior cell.

Abdomen: The abdomen is a little wider than the mesonotum and comparatively long and in consequence with a somewhat slender appearance. It is everywhere punctulate with coarse, appressed setae and some rather long, fine, erect hairs along the lateral margins. The sides of the first tergite have a straight, vertical row of 6 microtuberculate, close-set, long, stout, pale bristles. Lateral margin of the second tergite near the middle with 4 to 5 slender bristles or bristly hairs. Posterior margins of all of the segments before the actual apex with a fine fringe of subappressed hairs. Females with six segments and with the seventh segment quite short and linear; it can be exposed to view with a slight tilt to the abdomen. Female terminalia recessed and inconspicuous.

Distribution: Neotropical: *Lycosimyia carrerae* Hull (1958).

Genus *Strombocodia* Hermann

FIGURE 2511

Strombocodia Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 165, 1912. Type of genus: *Strombocodia elegans* Hermann, 1912, by original designation.

I have not seen any asilid which satisfactorily corresponds to Hermann's description of this genus. Below I give a translation of the principal characteristics of the genus from his description. Hermann gives the length as 5.5 mm.

Head: The head is only a little broadened but with a large, vertical diameter, which appears in profile like a half sphere. The relatively small face is a little arched at the base of the antenna as well as on the border of the mouth and the intervening portion is plane. The mystax consists only of numerous, small bristles; under the base of the antenna there are some very delicate, little hairs; otherwise the face lacks pile completely. The front is moderately broadened but the vertex has the same width as the face and is quite densely pilose. Ocellar tubercle very little produced and bearing 2 long bristles. The occiput has delicate pile. The occipital bristles are extended and become thinner from the middle of the head downward. The proboscis is long and rough on its underside, with some long bristles. The palpus is relatively large as found in most Atomosini. On the not conspicuous but quite deeply placed antenna the first segment is twice as long as the short second segment and is short pilose, with on the lower surface a single, long bristle. The second segment is provided with some bristly hairs only at the apex. The spindle-shaped third segment is about twice as long as the combined length of the first two; it is without an end segment (*endgriffel*) and toward the apex especially it bears exquisite pubescence, which is almost featherlike. On this segment, somewhat behind the middle of the upper ridge, there stands on the edge a deep notch or groove with very strong, toothlike spine.

Thorax: The mesonotum is only slightly arched and bears short, erect pile along the sides. Scutellum with fine punctures and short, erect pile along its border. Bristles of the mesonotum consist of 1 presutural, 2 or 3 notopleural, 1 supraalar, 1 postalar bristle. Metapleural fringe very thin. The pleuron is, with the exception of the mesopleuron, uniformly dusted with pollen and scattered hairs. Pronotal collar with bristles; metanotum without bristles but with a bundle of fine hairs.

Legs: The light, almost transparent legs are delicate; the entire tibia, as well as the hind femur, are slightly thickened towards the apex. The pile of the legs is delicate; such bristles as are present are weak and especially numerous on the front legs. The bristlelike pile is limited to the under side of the tarsi but on the apex of the hind tibia forms a protruding cushion of exquisite rows of little individual hairs. The dense fringe of pile (*Wimperbeharrung*) covers both the hind tibia and hind femur on the opposing faces.

Wings: The relatively broad wings show very little that is characteristic in the arrangement of the veins. The anterior crossvein enters the discal cell at the basal quarter.

Abdomen: The abdomen is moderately long, toward the back somewhat broadened. The abdomen has 6 segments visible from above; it is uniformly and grossly punctured, and has very delicate and erect pile. On the side margins of the abdomen there are only a few, longer hairs and on the tergites real discal bristles are lacking.

Distribution: Neotropical: *Strombocodia elegans* Hermann (1912).

Ilodites, new genus

FIGURES 286, 642, 1273, 1282

Type of genus: *Ilodites punctissima*, new species.

Small, black, stout flies that are strongly punctulate on abdomen, mesonotum, scutellum and the whole of the mesopleuron. The hind femur is moderately swollen beyond the middle, its tibia rather stout; the pronotum has 10 pairs of spikelike bristles, the scutellum, however, bears only a pair of widely separated, very short, moderately stout bristles. Proboscis quite short and truncate. Face convergent below, the mystax composed of short, weak bristles and the third antennal segment long with middorsal spine and the apex thinned and truncate. Length 9 mm.

Head, lateral aspect: The head is of moderate length and the posterior profile of the eye is strongly rounded above and below with the occiput barely visible at any point. The face is quite short, very slightly more protuberant above the epistoma and with a low, scarcely evident elevation below, so that it is almost plane in profile. Proboscis is short, truncate, with at apex fine, anteriorly directed hairs; it is directed straight forward and does not extend as far as the face. Palpus with both segments extremely minute and bearing fine hairs. The antenna is attached at the upper third of the head and is elongate, considerably longer than the head; the first segment is a little more than 3 times as long as wide, at least 2½ times as long as the second segment. The third segment at the base is distinctly wider than the second segment and gradually and slightly tapered until on the apical third its width is about equal to the width of the second segment; the third segment is not quite two times the combined length of the basal segments. Near the middle, the third segment has a distinct, dorsal spine. The apex is thinned and truncate, without microsegment. The first segment has numerous bristly setae below, 1 longer, slender bristle in the middle, and numerous, shorter setae above. Second segment with long setae below and short setae above.

Head, anterior aspect: The width of the head is approximately two times the height. The face below the antenna is somewhat less than one-fifth the head width and distinctly narrowed below; its surface is covered with appressed, silvery micropubescence and there are 2 or 3 quite weak, pale bristles or bristly hairs on each side on the upper half, and a few other shorter hairs. Above the epistoma is a pair of widely separated, short, slender, black bristles, another on each side at the middle of the subepistomal margin, besides a small tuft of short, dark, stiff hairs in the middle of the epistomal margin. Subepistoma oblique and concave. The front is considerably wider than the upper face, with the vertex narrowed moderately. Middle of each half of the front with a trough or V-shaped depression longitudinally; its medial sides bear a few fine hairs; its lateral sides along the eye bear slightly longer, equally fine hairs. Vertex but little excavated, the ocellarium is small and low with a quite slender, moderately long bristle or bristly hair between the ocelli and 2 or 3 fine hairs behind. Postvertex polished as far back as the posterior eye margin.

Thorax: The thorax is comparatively long and not very high. The mesonotum is not high and is gently convex from the anterior to the posterior margin. It is rather densely covered with very fine, subappressed, curled hairs, nowhere differentiated and the whole surface including the humerus coarsely punctate. Lateral bristles weak, slender and only moderately long; there is 1 notopleural, 1 supraalar, 1 on the postalar callosity, and a pair of small, weak, widely separated bristles on the scutellar margin. Upper posterior mesopleuron with a long, slender, bristly hair. Surface of the scutellum slightly convex and with the whole mesopleuron and upper third of sternopleuron coarsely and conspicuously punctulate; however, there is a round, polished anteroventral space on the mesopleuron without punctures. Posterior border of the mesopleuron and upper sternopleuron with a curious, sharp-edged, smooth, circular, posteriorly sloping depression. Metapleuron with 12 long, slender, bristly hairs. Pronotum with 12 pairs of spikelike, yellow spines or spinous bristles. Postmetacoxal area with a complete but short chitinized arch; prosternum fully joined to lateral propleuron.

Legs: The anterior four femora are but slightly thickened, the hind femur plane below, is a little more enlarged on the distal half than is usual in this tribe, and not quite twice its basal thickness. Most of the swelling is concentrated at the outer third. Hind tibia distinctly more stout throughout than the other tibiae, though quite narrow at the base. The hind femur bears ventrolaterally at the outer third 1 weak, slender, pale bristle and a few, fine, moderately long, ventral hairs, and a rather conspicuous ventromedial fringe of erect, rather long hairs. A similar fringe extends over the ventral surface of the hind tibia. Hind tibia with 2 somewhat more stout, pale, lateral bristles and 4 ventrolateral bristles. The bristles of the apical circlet are subapical. Anterior and middle femur only with scattered, fine, erect, long hairs ventrally. Middle tibia with 5 moderately long, anterior bristles, and 5 short posterior bristles, and both sets of bristles weak; there are also 3 short, ventral bristles. Anterior tibia with 5 short, weak, anterodorsal bristles, 4 posterior bristles, the distal element stronger, 1 conspicuous but slender basal, posteroventral bristle and 3 distal, ventral bristles. Second and remaining tarsal segments quite slender. On the hind tarsus the first and second segments are both somewhat swollen. Claws fine, sharp, bent at the apex; pulvilli well developed; the empodium stout.

Wings: The wings are faintly tinged with brown along the middle and almost wholly villose and broad. Marginal cell closed with a moderately long stalk, second submarginal cell is rather wide basally and entirely widened in front of the third vein. The anterior branch of the third vein ends barely before the wing apex, the posterior branch ends at a considerable distance behind, so that the enclosed cell is considerably flared; the first posterior cell, however, is only slightly narrowed; the fourth is closed with a short stalk, the anal cell is closed and stalked. Posterior crossvein wanting. The discal cell is considerably shorter than the fourth posterior cell, the former is therefore closed by one vein. Alula small; the ambient vein ends with the second posterior cell.

Abdomen: The abdomen is comparatively broad, as wide as the thorax with approximately parallel sides at the end of the fourth segment. Last 2 segments somewhat narrowed but obtuse at apex. The triangular sixth segment is as long as the fifth and is strongly cupped downward and even anteriorly beneath on the ventral surface. The whole surface of the abdomen is coarsely punctulate and bears minute, fine, appressed setate pile. Lateral marginal pile of tergites very little longer. Sides of first segment with 3 short, spikelike tuberculate bristles. Middle of lateral margin of second segment with 1 minute, spikelike bristle. Terminalia are small, similar to *Atomosia* Macquart and deeply recessed.

Distribution: Neotropical: *Hodites punctissima*, new species.

Hodites punctissima, new species

Length 10 mm. including antenna. Female. Head: The head is polished black, the face densely, silvery white, appressed micropubescent. The pile is white, the few bristles of the mystax are black with a tuft of short, blackish hairs medially on the epistomal margin. Front more thinly silvery or greyish white pollinose, the pile white, the low, small, ocellar tubercle with a single yellowish white, slender bristle and behind the ocelli 2 or 3 pairs of short, fine, white hairs. Bristles of occiput widely spaced, short, stout dorsally, nearly white, continued down over the ventral portion of the occiput and also across the lower border of the occiput behind the proboscis, where they are comparatively stout. Lower occiput with at most a few, fine, white hairs. Antenna with the first segment black and with rather numerous, black setae both above and below, and a single long, white bristle ventrally near the middle. This segment is nearly 3 times as long as the second segment, which is medium brown with black setae. Third segment is brown on the extreme base, black over most of the whole segment, with dark brown and exceptionally short micropubescence. Apex of second segment rather flat and strongly truncate and broad.

Thorax: The thorax is quite black, moderately shining, strongly and coarsely punctured; the punctured area includes the anterior margin, the whole humerus, the whole disc of scutellum, the whole mesonotum with its side margins and the postalar callosity except the hinder portion of this callosity, the whole of the mesopleuron except a small anterior area, and the upper sternopleuron. Pile minute, curled, appressed, and pale yellow. Pollen or rather coarse, appressed micropubescence is silvery white or grey; it is limited to a very narrow linear band between the notopleuron and the mesopleuron, and upon the curved, arching depression marking off the posterior mesopleuron and the upper sternopleuron, and which is continued also posteriorly on the lower, not depressed sternopleuron. There is similar silvery pubescence on almost the whole propleuron, the hypopleuron, more faintly on the metapleuron, and more densely on all coxae. Propleuron with some scattered, stiff, white hairs, appressed backward. Pronotal collar with 9 pairs of spikelike, stout, sharp, yellow bristles. Metanotal callosity with short, yellow bristles and pile. Halteres pale brownish yellow, the base narrowly reddish. Prosternum fused laterally. Notopleuron, supraalar and postalar callosity with a single short, yellow bristle. Scutellar margin with a pair of widely separated, still shorter yellow bristles.

Legs: The anterior four legs including the apices of their coxae, except the last tarsal segment, pale, translucent, brownish yellow. Ventrally on these femora near the base and ventrally over the middle of these four tibiae is an obscure, brownish smudge. Last section of the tarsus, except at the base, is blackish. Hind femur black or nearly black, except on the basal fourth and the extreme apex; these pale yellow or brown and diffusely demarcated. Also the comparatively robust hind tibia is brownish black except on the basal third, which is pale yellow and not sharply marked off. Hind tarsus brownish yellow; the last segment, except the base, black. Claws slender, black, brownish yellow at the base. Pulvilli well developed. Pile of the legs very pale yellow to whitish. Ventral surface of the hind femur medially and of the hind tibia have a moderately dense, erect fringe of pale pile. On the tibia it continues erect to the apex. Hind basitarsus is comparatively large and thick, the second and third segments also somewhat swollen. The anterior basitarsus also rather thicker than the succeeding segments. Bristles few and weak and only moderately more prominent on the tibia, perhaps most conspicuous on the anterior tarsal segments and all the bristles pale, brownish or reddish yellow. Posterior trochanter at apex anteriorly with a dark, brown spot.

Wings: The wings are distinctly tinged with pale brown but somewhat lighter at apex and post margin. First posterior cell very slightly narrowed, second of uniform width, fourth closed with a short stalk and this cell is a little longer than the discal cell, which is closed nearly rectangularly. Posterior crossvein absent, the anal cell closed with a short stalk, ambient vein ends at the end of the second posterior cell, the rectangular, anterior crossvein enters the discal cell slightly before the middle. Posterior branch of fourth vein with thyridium at the base. Alula narrow.

Abdomen: The abdomen at the base is nearly as wide as the mesonotum and slightly wider at the end of the third segment. First, second and third tergites of equal length, the fourth a little longer, the fifth still longer and the sixth down the middle almost or quite as long as the fifth and forming almost an apically rounded, convex, equilateral triangle. It is completely obtuse apically, cupped under and backward, concealing the terminalia. Whole abdomen uniformly, densely and coarsely punctured, shining black with regularly spaced, minute, appressed, yellow setae. Postmargins of the second to the fifth tergites with an extremely narrow, postmarginal fringe of silvery micropubescence. Sides of first tergite with 3 stout, short, white bristles, middle of lateral margin of second tergite with 1 stout, white bristle.

Type. Female, Goias, Corumba, Brazil, F. Monjolinho, November 1945, Barretto collector. Type in the collection of the Departamento de Zoologia, Secretaria da Agricultura, São Paulo, Brazil.

Genus *Atractia* Macquart

FIGURES 248, 651, 1331, 1340

Atractia Macquart, Diptères exotiques, vol. 1, pt. 2, p. 151, 1838. Type of genus: *Asilus psilogaster* Wiedemann, 1828, by monotypy.

Rather small flies, characterized by the punctate, posteriorly cupped abdomen on which the terminalia are almost, not quite concealed, the restriction of tergal bristles to the first 2 or 3 segments, the complete or almost complete alignment of the end vein of the discal and fourth posterior cells, but more especially by the characteristically attenuate, bristle-tipped, third antennal segment, which carries in addition a dorsal, spine-bearing incision just beyond the middle. Length 8 to 10 mm.

Head, lateral aspect: The face almost plane with the eye on the upper portion, slightly produced and gently rounded on the lower part, chiefly due to the recession of the eye. The eye is of moderate length, a little more narrow ventrally, strongly convex anteriorly, but nearly plane posteriorly, except at the upper and lower corners. The occiput is short, obliterated dorsally, a little more prominent below. It has ventrally rather abundant, comparatively short, fine pile which is almost entirely replaced by bristles on the upper half; there are 6 pairs of medium, stout bristles beginning at the middle of the head; placed deeply submarginal and behind the vertex and upper eye corner are 3 additional, quite stout bristles. The proboscis is distinctly longer than the face and distinctly compressed laterally; it is nearly plane to the apex ventrally; the oblique, obtuse apex is tapered from the dorsal side. The base in lateral profile is gently swollen below and bears a number of fine, long hairs; there is a prominent, medial ridge above on the basal two-thirds; the apex above and below bears numerous, long, fine hairs. Palpus of two segments, the first segment excavated, the second rather long, slender, cylindrical, slightly attenuate and bearing stout, ventral and apical bristles

Head, anterior aspect: The face below antenna is about a fifth of head width and slightly divergent below. Subepistomal area comparatively short, small but oblique and encroaching but little on the face, nearly plane and bare. The face is pubescent and bears a number of conspicuous, long, slender, and sometimes stout bristles on the lower and slightly elevated portion of the face. These may consist of 8 to 10 bristles ranged more or less as a narrow triangle with additional, shorter, fine bristles on the upper portion of the face and with some stiff, long, scattered pile intermixed. The antenna is attached at the upper fourth of the head; first two segments short, nearly equal in length or the first a little longer. The third segment is elongate, of the same width or sometimes wider than the second segment; it is wide basally and tapers mostly on the outer third until rather narrow at the apex and it bears a long, bristly style which may be more than half as long as the third segment; in addition, dorsally, at approximately the outer third, there is an incision with a distinct, short spine. Pile of the first segment composed of a few, short setae at the apex above and below and ventrally with 1 to 2 long, stout bristles. Front short, pubescent, somewhat elevated in the middle and with shallow, sublateral fossa; the vertex is rather deeply excavated with prominent, high ocellarium, bearing a pair of stout, long bristles. Anterior eye facets strongly enlarged.

Thorax: The thorax is thinly appressed pubescent; the mesonotal pile is dense, bristly and rather strongly appressed. Acrostical elements absent; dorsocentral bristles weakly developed posteriorly. Humerus with stiff, pile only; the lateral mesonotum has long, stout bristles consisting of 1 posthumeral, 1 notopleural, 1 or 2 supraalar, 3 or 4 postalar, and 2 pairs of scutellar bristles which may sometimes be exceptionally stout. Scutellum rather thick, gently convex, pubescent with numerous, appressed, bristly hairs and a deep basal crease. Propleuron below with a number of fine, long hairs; posterodorsal propleuron similarly pilose, the pronotum has weak bristles. Posterior and anterior sternopleuron with some scattered, long hairs; similar fine, long hairs over much of the mesopleuron and 1 to 3 stout, long, mesopleural bristles. Hypopleuron posteriorly with a number of fine, long hairs; metapleuron with a wide band of extremely long, slender bristles, the dorsal elements more stout. Metanotal slopes with stout bristles and stiff pile; lateral and ventral metasternum with long pile; postmetacoxal area chitinized and long; tegula with bristles; squamal fringe scanty and composed of a single row. Prosternum not dissociated.

Legs: The legs are stout without being swollen; the dorsal femoral pile is appressed and setate but scanty, the lateral pile suberect, quite scanty and longer. There are 2 slender bristles dorsally near the apex and a dorsomedial apical row of 5 or 6 stiff, bristly hairs; ventral margin with 15 to 20 slender, erect hairs and ventrolaterally 10 to 12 longer, fine hairs with an additional, ventromedial, basal row of 4 or 5 quite long, slender hairs. Hind tibia with a moderately abundant, nearly erect, long, ventral fringe and a brush of setae in ranked pile only at the apical fifth; the bristles are quite long and tend to be basally stout and finely attenuate; they consist of 5 dorsal, 4 dorsolateral, 3 or 4 lateral, and 4 ventral; basitarsus as long as the next 3 segments. Middle femur with a bristle anteriorly at base and another at the distal third, but with only bristly hairs dorsally and posterodorsally; middle tibia with exceptionally long, basally stout, attenuate bristles, 4 anterodorsal and 4 anteroventral; among the former the distal elements are longer, among the latter the basal elements are longer; the longer bristles may be considerably more than half as long as this tibia; the remaining bristles are 4 dorsal and 3 posterior and 5 or 6 posteroventral bristles which are considerably shorter and finer. Anterior femur with 5 or 6 long posterodorsal hairs and similar, finer, ventral hairs; the posterior tibial bristles of which there are 3 or 4 are quite long, but not as long nor as stout as the medial, tibial bristles. Anterior tibia dorsally with a double, dorsal row of 5 or 6 slender bristles. Tarsi end in slender, sharp claws, curved chiefly at the apex, well developed pulvilli and slender, bladelike empodium not basally swollen.

Wings: The marginal cell is closed with a long stalk; the anterior branch of the third vein is strongly arched at the base, ending just before the wing apex; posterior branch ends far behind the apex. First posterior cell narrowed to a fourth its maximum width; fourth posterior cell closed with a short stalk; end vein of the discal cell and of the fourth posterior cell either in strict alignment or slightly offset. Anal cell closed; alula moderately wide, the ambient vein ends with the second posterior cell; the anterior crossvein enters the discal cell near or before the basal third.

Abdomen: The abdomen is as wide as the mesonotum, with parallel or nearly parallel sides. It is gently convex basally, strongly convex posteriorly with the surface coarsely punctate, the sixth tergite tending to be slightly cup-shaped. Sides of the first tergite with 4 stout bristles; the second tergite laterally bears 2 or 3, the third tergite has 1 or 2 similar bristles. Abdominal pile dense, appressed and setate, long and fine along the lateral margins. The apex of the abdomen is not as strongly curved downward as in *Atomosia* Macquart, even though the terminalia are also concealed in both sexes. There are six tergites in the male with a narrow lip of the seventh exposed; seven tergites in the female, the seventh is quite short, distinctly in evidence laterally but not dorsally; posterior margin of the sixth tergite with a very slight emargination. Male terminalia small, recessed and mostly concealed. The gonopod has a narrow, transverse arm, which curves inward to meet the corresponding element from the other side; in this respect and in general they are similar to *Atomosia* Macquart; female terminalia form a minute, short, protruded plate; the eighth sternite bears a circular medial depression.

Distribution: Neotropical: *Atractia comata* Hermann (1912); *conjungens* Hermann (1912); *coronata* Schiner (1867); *dispar* Hermann (1912); *fulvipes* Hermann (1912); *longicornis* Hermann (1912); *lucida* Hermann (1912); *marginata* Osten Sacken (1887); *?minuta* Wiedemann (1828); *nigripes* Macquart (1838); *picta* Hermann (1912); *psilogaster* Wiedemann (1828); *pulverulenta* Schiner (1867); *rubida* Hermann (1912); *vivax* Hermann (1912).

Ethiopian: *Atractia arcuata* Curran (1927).

Genus *Eumecosoma* Schiner

FIGURES 290, 681, 1290, 1299

Eumecosoma Schiner, Verh. zool.-bot. Ges. Wien, vol. 16. p. 673, 1866. Type of genus: *Laphria pleuritica* Wiedemann, 1828, by original designation.

Small, dark colored flies with the abdomen smooth or only faintly punctulate. Third antennal segment long oval but of no great length and with acute apex and also with apical spine. Abdomen quite often subclavate, the basal segments narrowed. End vein of discal and fourth posterior cells nearly aligned, or slightly offset. Length 6 to 12 mm.

Head, lateral aspect: The head is unusually short. The face is not visible in profile except for a trace below. Upper third of occiput with 6 or 7 long, rather stout, sharp bristles. The proboscis is small, extremely short and subcylindrical. Palpus minute and cylindrical. The antenna is relatively short with the third segment long oval, ending acutely, and obliquely truncate; this truncate portion forms a narrowed cavity with tiny visible spine, some distance back from the spinelike apex of the third segment. First segment with a long, conspicuous, slender, ventral bristle and a few setae; second segment also with a few setae.

Head, anterior aspect: The eyes are very strongly flattened and the greater part of the anterior facets enormously enlarged. Face quite narrow, with parallel sides and everywhere yellowish pubescent. The bristles of the face are very weak and may consist of an epistomal mystax of 10 to 16 long, slender hairs; upper face sometimes with 4 to 6 long, fine hairs. Ocellar protuberance with a pair of long, slender, divergent bristles, slightly curved backward.

Thorax: The mesonotum is low and gently convex, gently arched in front with scattered, sparse, fine, suberect, pale pile and moderately long, often reddish bristles as follows: 1 notopleural, 1 supraalar, 2 postalar, and 1 pair of rather close-set scutellar bristles. Scutellum with distinct, preapical crease. The slopes of the metanotum bear 2 or 3 reddish yellow bristles and some additional long hairs. Hypopleuron with 4 or 5 long hairs, metapleuron with a wide band of long, divergent, fanlike, reddish yellow, slender bristles; curved downward at apex. Mesopleuron with 2 stout, rather long, reddish bristles; pteropleuron pubescent only. Propleuron at most with 1 fine, weak bristle. Postmetacoxal area chitinized; prosternum not dissociated.

Legs: Hind femur distinctly thickened, especially on the outer half and narrowed at apex. The pile is sparse, except below where there is a dense, erect, fringe of yellow, ventromedial, unmodified pile, matched by a similar fringe on the hind tibia. The dorsal surface, beginning just beyond the middle has 3 stout, reddish bristles; the last one is some distance back from the apex. Lateral surface with 2 stout, rather long bristles, reddish and curved downward, the more basal one is opposite the basal element of the dorsal bristles. In addition, ventrally there are 3 or 4 long, reddish, erect hairs chiefly confined to the basal half. Tibia with 2 extremely long, oblique, stout, dorsal bristles; also 2 more slender, lateral bristles at the basal fourth and middle. The ventral aspect has 4 bristles beginning just before the middle and curved, all quite long but quite slender. Apex with long, weak bristles below. Middle femur with 2 weak bristles dorsally near the apex and behind them 3 or 4 closely adjacent, long, reddish, fine, erect hairs. Middle tibia with extremely long, reddish bristles, 4 stout dorsal elements, 5 ventral bristles a little less stout and all of them oblique.

The anterior femur has 2 weak bristles placed dorsally before the apex in a longitudinal row; the ventral margin has 6 or 7 quite long, fine hairs; the anterior tibia has 5 quite long, rather stiff, slightly oblique, reddish ventral bristles; dorsally there are only 5 weak, shorter bristles; the ventral row is double. The anteroventral and posteroventral rows each contain only 3 long, stout bristles and 1 weak basal element. Anterior basitarsus with 1 very long, posterior, basal bristle; it and the succeeding segments have equally long, apical bristles. Claws moderately elongate, sharply convex, apically sharp; the pulvilli is four-fifths as long as the claw; empodium long as the claw but slender.

Wings: The wings are unusually slender. Marginal cell closed with a long stalk. Posterior crossvein rectangular to the fourth vein. All posterior cells widely open except the fourth which is closed with a short stalk. The anterior crossvein enters the discal cell at the basal third, or basal fourth. Anal cell closed and stalked. Alula quite narrow. The ambient vein may end at the end of the second posterior cell or even before this point.

Abdomen: The abdomen is typically not punctulate but distinctly narrowed; most narrow at the end of the second tergite where the abdomen is scarcely half as wide as the end of the fifth tergite. The first tergite is nearly as long as the second, at least three-fourths as long. Sides of first tergite with a vertical row of 5 very stout, long, reddish bristles. Middle of the lateral margins of the second and third tergites each with 2 and of the fourth and fifth tergites each with 1 long, stout, somewhat curved, pale, subappressed bristle. Sternites with only long, fine pile. There are seven tergites in the male, the seventh is reduced to half the width and length of the sixth; there may be a thin, linear trace of the eighth tergite. Eight tergites visible in the female, the last two are quite short and a fifth or less the width of the sixth tergite. Male terminalia more exposed than in *Atomosia* Macquart, and rotate and the triangular, medially curved arms of the gonopods, which do not meet, are visible from above if the insect is tilted forward and downward, as well as the space which they tend to enclose. The remainder of the true ventral aspect is hidden under the last tergite. However, viewed from beneath the small, divided and separated epandrium appears with the tiny proctiger between; a small inner process appears to arise from the gonopod and to be turned or directed downward. What is presumably the eighth sternite, but may be the eighth tergite, forms a broad, transverse, moderately long or wide band immediately in front of the epandrium. The female terminalia form a small, short, robust conical projection or protuberance beyond the last tergite; it has a medial dorsal longitudinal fissure.

Distribution: Neotropical: *Eumecosoma calverti* Hine (1917); *dichroma* Bigot (1878); *gibbum* Curran (1930); *hirsutum* Hermann (1912); *metallescens* Schiner (1868); *mollis* Bromley (1934); *pleuritica* Wiedemann (1828); *shropshirei* Curran (1930); *staurophora* Schiner (1868); *tarsalis* Curran (1930).

Catonomyia, new genus

Figure 660

Type of genus: *Catonomyia spiculata*, new species.

Small, slender, black flies with punctulate abdomen but smooth mesonotum. The scutellum has a pair of long, spikelike bristles. The slender hind femur bears only long, quite slender bristles of which there are 2 laterally, 2 basally and ventrally and 2 or 3 other fine, long hairs and a ventral fringe of erect, fine hairs. Third antennal segment angulate below near the base, the lower margin thinned, the apex with a microsegment and basal spine. Length 7 mm.

Head, lateral aspect: The face is quite plane with the eye except for a very short, small elevation on the lower fourth of the face. Occiput poorly developed, more prominent submedially; it is completely recessive on the upper fifth of the head. The occiput bears a few, fine, scattered hairs on the lower half, 3 weak bristles above, and 4 more stout, black bristles behind the upper vertex and upper eye corners. Proboscis small with truncate apex bearing fine, bristly hairs. It does not extend beyond the face. Palpus quite minute, short, cylindrical with 3 slender, apical, bristly hairs; the basal segment is very short. Antenna attached at the upper fourth of the head, in profile, but actually almost at the vertex. The first segment is slightly longer than the second and both are short and both bear fine setae above and below. The first segment bears 1 long, slender bristle and 1 short bristle attached ventrally in the middle. Third segment, microsegment included, is a little more than twice the length of the first two together and narrow at the base; it is rapidly widened and close to the base the ventral surface is angulate and from there to the apex thinned and also reduced in thickness. The apex bears a short, more narrow, obtuse microsegment carrying a distinct, subbasal, dorsal spine.

Head, anterior aspect: The width of the head is approximately 1½ times the height. The face below the antenna is quite narrow and becomes more narrow in the middle and slightly wider below. In the middle the width of the face is from a seventh to an eighth the head width, its surface densely, finely micropubescent. It bears on each side vertically 5 or 6 fine, slender, pale hairs. On the small gibbosity above there are 2 slender, black bristles followed by 3 longer, equally slender, yellow bristles in a vertical row on each side. Front and vertex strongly widened; the vertex is rather deeply excavated; the small, high ocellarium has nearly vertical sides and between the ocelli there is a pair of erect, moderately strong, long bristles; behind the ocelli 2 small hairs. Front with a median ridge; the sides have 3 or 4 weak hairs.

Thorax: The thorax is comparatively short and moderately high but not on the mesonotum. The mesonotum is gently convex with an abrupt, overhanging, posterior margin leaving a basal crease beneath it; the anterior margin is also abrupt. Surface densely covered with fine, suberect pile. The lateral bristles are mostly slender and consist of 1 notopleural bristle, 1 or 2 supraalar, 1 on the postalar callosity, and on the scutellum a pair of quite long, conspicuous, basally stout, attenuate, spikelike bristles. Metanotum high and laterally with a tuft of stiff pile. Pronotum with only weak hairs. Posterior dorsal corner of mesonotum, however, with a long, conspicuous bristle. Metapleuron with a vertical row containing 4 dorsal, black and 3 ventral, yellow bristles, very long, curved distally. Postmetacoxal area with wide, complete arch of chitin. Prosternum fused laterally.

Legs: All the femora are slender, the hind pair is very slightly widened before the apex. They bear fine, scattered, more or less appressed pile. The posterior femur is plane on its lower surface and bears a moderately dense fringe of fine, erect, ventromedial pile. It has 2 slender, long, fine bristles in the middle laterally, 2 other longer bristles on the basal third ventrally; it also has a few long, bristly hairs ventrally and ventromedially. Hind tibia short, slender, with a similar fine, medial fringe changing to ranked setae distally and with 2 conspicuous, long, basally stout bristles near the middle; it has 4 or 5 other more slender bristles ventrally and 3 fine, bristly hairs dorsomedially. Tarsal segments slender and elongate. Middle femur with more slender bristles and weaker ones. There is an anterodorsal bristle beyond the middle, near it an anterior bristle, and at most a bristly hair posterodorsally near the apex. The very slender middle tibia bears 3 conspicuous, exceptionally long, basally stout, anterodorsal bristles, 2 almost equally conspicuous, equally long, ventral bristles on the basal half, 1 near the apex, and 3 much smaller, fine, dorsal bristles distributed at equal intervals. Anterior femur with only a few, fine, bristly hairs. The anterior tibia has 3 weak, slender, dorsal bristles, 3 quite long bristles more stout at the base, located posteriorly and 2 similar, ventral bristles. Tarsal segments exceptionally slender and long with remarkably long, basally stout, finely tapered bristles. Claws fine, sharp; pulvilli and empodium well developed.

Wings: The wings are nearly hyaline; the marginal cell is closed with a moderately long stalk. First posterior cell widely open, the medial crossvein wanting; the vein ending the fourth posterior cell usually meets the upper anterior intercalary vein, which closes the discal cell. Stalk of fourth posterior cell is long; anal cell closed and stalked. Whole wing villose except base of axillary lobe. Alula quite narrow; the ambient vein appears to be absent from the apex of the wing to the end of the anal cell.

Abdomen: The abdomen is slender, coarsely punctulate but with abundant, fine, suberect setae and only a few longer hairs ventrally on the curled over sides of the first 2 or 3 tergites. Sides of the long first tergite with 5 stout, pale bristles. Middle of the lateral margin of segments 2 to 4 or beyond each with 2 conspicuous, pale bristles.

Distribution: Neotropical: *Catonomyia spiculata*, new species.

Catonomyia spiculata, new species

Length 10 mm. with antenna. Male. Head: The head is quite black, face densely covered with exceptionally minute, silvery white, appressed, micropubescence; the whole of the front, except a medial line and except a minute supraantennal triangle, also covered. The silvery pubescence continued at the bottom of the deep trough, beside the high, vertical, walled, ocellar tubercle and toward the back as a conspicuous patch between the narrow walls of the postvertex. The outer third of the flat and rather recessive occiput is similarly covered with dense, silvery pubescence. Its upper limit is widely separated from the medial, vertical patch and also all of the medial part of the occiput is black. Pile of lower half of occiput is white, fine, and scanty; 3 white bristles in the middle of the occiput, 5 quite sharp, moderately stout, straight, sharp, black bristles on the upper part of the occiput in a single row. Upper half of face with 4 white hairs on each side in vertical row and below on the almost non-existent, retreating gibbosity are 5 pairs of submedial, long, slender, black bristles in vertical row, and in the middle below there are 4 shorter, black hairs. Proboscis shining, brownish black, extending slightly beyond the face, the apex blunt but not truncate. Palpus not large, the second segment of moderate size, slender, with black, slender, bristly hairs. Sides of front with 3 minute, black, bristly hairs, tubercule with 2 long, slender, black bristles.

Antenna with the first two segments dark reddish brown but not black. Third segment nearly black, the extreme base reddish brown. This segment is quite slender, attenuate toward the apex, and bears a long, medial scar of differentiated pubescence, the pubescence at the extreme apex a little longer. On the dorsal side near the middle is a deep incision with yellow spine. First segment twice as long as second with 2 long, slender, black bristles below and other long, black setae. Second segment with long, black setae or short bristles above and below at apex.

Thorax: The mesonotum is shining black, not very high, not punctured, and with a patch of silvery pollen on the humerus, narrowly behind the humerus and narrowly on lateral margin, behind which it changes to reddish brown, but of still limited extent. The pile is appressed, abundant and reddish brown and is a little more conspicuous and longer behind the suture, where it is almost fox-red in color. Anteriorly are 4 fine, longer, black hairs in the dorsocentral row, becoming scarcely longer posteriorly. Lateral bristles long but fine, 1 on notopleuron, 1 supraalar, 2 on the shining, bare, light, reddish brown post callosity; and on the shining, black scutellum there are 4 quite long, remarkably stout, evenly spaced, reddish brown, spikelike bristles. Disc of scutellum with some 8 or 9 long, suberect hairs on each side. Pleuron black, thinly dusted with silvery pollen, except on the anterior mesopleuron, where it is even less conspicuous. It is comparatively dense on the posterior half of the mesopleuron and the whole sternopleuron. Postmetacoxal arch of the metasternum rather long and fully chitinized. Halteres light reddish brown. Metanotal callosity with bristly, yellow pile. There is a narrow, prescutellar band of minute, reddish pubescence on the mesonotum.

Legs: The femora, also, the hind tibia but little thickened. Medially the hind femur has a very scanty fringe of erect pile only along the middle. Hind tibia with a somewhat abundant fringe, the apex narrowly with flattened, reddish, ranked setae. All the femora are dark reddish brown over the greater middle portion, becoming lighter reddish or even yellowish at the extreme base and more widely at the apex. Bristles moderately abundant, slender but quite long. They are extraordinarily long on the middle and anterior tibia and also dorsally on the hind tibia. They are only moderately long on the hind femur and the pile is long but quite scanty and not at all abundant. Basal third of the hind femur ventrally with 3 or 4 quite long, reddish yellow bristles. Hind tibia with 3 similar, somewhat more stout, dorsolateral bristles, 4 or 5 much more slender bristles or bristly hairs dorsomedially, which are not quite as long. Ventral surface with 4 quite long, strongly curved, whitish bristles. Middle femur with an anteroventral fringe of 5 or 6 bristles and a posteroventral fringe of 10 or 12 slender bristles. Middle tibia with 3 extraordinarily long, reddish, anterodorsal bristles, 3 similarly long, posteroventral bristles, and with 4 or 5 shorter, posterodorsal and posterior bristles, besides an additional row of anteroventral bristles. The anterior femur is similar to the middle femur; on the anterior tibia only the anteroventral and posteroventral rows of reddish bristles are exceptional in length. At the apex of the anterior basitarsus and the following segment on each side there is an extraordinarily long, basally stout, reddish bristle. Claws slender, black, reddish at the base. Pulvilli long.

Wings: The wings are nearly hyaline, with a very faint brownish tinge, wholly villose, except in parts of the costal and basal cells. First posterior cell rather narrowed to half of its maximal width, second posterior cell of uniform width. Fourth posterior cell closed with a short stalk and a little shorter than the discal cell. Anal cell closed with a short stalk. The anterior crossvein enters the discal cell before the basal fourth. Alula narrow. The ambient vein ends at or just beyond the first posterior cell but is weak behind the apex of the wing. Basal setae of the costa unusually long.

Abdomen: The abdomen is comparatively slender, widest on the first segment, which is as wide as the mesonotum. Whole abdomen coarsely punctured and strongly corrugate in lateral profile, each tergite convex. The abdomen is shining black with a small, postmarginal triangle or band in each posterior corner on the second to fifth tergites, silvery white or greyish in color. Pile moderately abundant, suberect, coarse, blackish over the middles of the posterior tergites, yellowish at the base of the second to fourth tergites, longer and yellowish white on the posterior margin of the sixth tergite. A narrow lip of the seventh tergite shows dorsally in the male. Lateral margins of the first tergite with 6 quite stout, long, pale, yellow bristles in a single, close-set row. Bristles absent on remaining tergites, though the hairs on the sides of the second tergite are rather stiff.

Type: Male, Distrito Federal, Rio de Janeiro, Brazil, October 1937 (Servicofevre, Amarella, M.E.S. Brasil). In the collection of the Departamento de Zoologia, Secretaria da Agricultura, Sañ Paulo, Brazil.

Genus *Aphestia* Schiner

FIGURES 292, 648, 1195, 1204

Aphestia Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 673, 1866. Type of genus: *Atomosia annulipes* Macquart, 1838, as *Aphestia brasiliensis* Schiner, 1866, by original designation.

Flies of less than medium size. Characterized by the narrow face, the small, slender proboscis, the appressed setate pile of the mesonotum and abdomen and the stout marginal bristles upon the tergites and especially by the quite long and quite slender antenna. The mesopleuron has long, stout bristles in the upper posterior corners. Length 10 to 13 mm.

Head, lateral aspect: Face narrowly visible on the upper half, gradually becoming a little more extensive below where it is gently and obtusely rounded. The eyes are strongly convex anteriorly and nearly plane posteriorly throughout the middle. The occiput is shallow in the middle, obliterated on the upper fourth but more prominent below; the pile is scanty through the middle and at the upper corners but becomes longer and more abundant ventrally. Stout bristles begin at the lower third and consist of 15 pairs with some weaker ones which lie directly in the middle of the occiput. Proboscis small, slender, subcylindrical, with the base gradually swollen from the dorsal aspect. The apex is tapered dorsally to a blunt point and bears dorsal and ventral pile. Base with a few long hairs laterally and ventrally; medial dorsal ridge quite low. Palpus clearly of two segments; the first segment is short, excavated, distinctly fused to the base, the second is longer, clavate, not porate, and bears stiff bristles at apex and other long hairs laterally and ventrally; hairs also present on the first segment. The antenna is attached at upper third, the first segment is 1½ times as long as the second, cylindrical, the second segment beadlike. The third segment is exceptionally long and slender, of uniform width. Just beyond the middle dorsomedially it has a shallow incision and conspicuous spine; apex of segment bluntly rounded but sharper dorsally; this segment 2½ to 3 times as long as the first two combined. First segment of antenna with several stiff setae dorsally on the apical half and with a single, long bristle ventrally near the middle and additional shorter, stiff hairs. Midborder of the second segment with 4 stiff setae above and 6 below.

Head, anterior aspect: The face below the antenna is a sixth of head width, widening below. Subepistomal region small, short, oblique, deeply concave and bare. The face is pubescent and bears, besides some stiff short pile on each side a vertical row of bristles which are partly doubled; those on the upper half of the face are short, those on the lower half much stouter and longer; all are strongly curved obliquely downward. The pile is distributed chiefly along the lateral margin with a few, scattered hairs in the middle portion above. In the middle portion may be some weak bristles. Front narrowly divergent, the vertex slightly convergent; the front bears along the eye margin 4 or 5 weak bristles. Vertex deeply excavated, with slanting sides. Ocellarium moderately large, with vertical or nearly vertical sides and bearing a pair of stout, long, divergent bristles. Eye facets considerably enlarged.

Thorax: The mesonotum is pubescent only along lateral margins, on humerus and, on whole of pleuron. Mesonotal pile dense, short, curled and setate; the surface is punctulate. Humerus pilose. The long, stout, lateral bristles consist of 1 notopleural with sometimes an additional bristle anteriorly, 1 supraalar with sometimes weak, shorter ones above the postalar, 1 or 2 postalar, 1 or 2 pairs of stout, long scutellar bristles. Scutellar rim impressed; surface convex, with numerous, stiff, curled hairs arising from punctures. Pleuron with abundant, fine pile on all portions; pronotum with 6 pairs of weak bristles; mesopleuron with long, stiff, scattered pile over almost the whole surface and bearing in the upper posterior corner 3 long, stout bristles. Upper and anterior sternopleuron, anterior and posterior hypopleuron each with a group of long, stiff hairs. Pteropleuron apilose; metapleuron with a wide, oval, patch of numerous, long, slender, weak bristles with, besides pile, a single, vertical row of 7 stout, long, black bristles. Metanotal slopes with abundant, long pile. Metasternal slopes densely long pilose; metasternum with long, scant pile; postmetacoxal area chitinized; tegula pubescent only; squama with a scattered fringe in 2 rows. Prosternum broad laterally; not dissociated.

Legs: The femora are stout without being especially thickened. The hind femur is slightly dilated posteriorly; it bears scanty, long, fine, appressed pile dorsally and laterally and an equally scanty, ventral fringe of erect to suberect pile; it bears a pair of subapical, dorsal bristles with an additional element dorsomedially and sometimes with a much weaker element dorsally a short distance back. Lateral bristles absent; ventrolateral margin with at least 1 stout, moderately long bristle located at the outer third, a few long hairs ventrally at the base and a partly doubled ventromedial fringe, of some 15 to 18 long, erect, slender, bristly hairs. The hind tibia bears 4 dorsolateral and 4 lateral stout bristles and 3 or 4 weak dorsal bristles. Ventrally is a dense fringe of erect, long pile beginning at the base and replaced by appressed setae only at the extreme apex. Apex with 1 dorsal, 1 dorsolateral, 2 lateral, 3 medial, and 4 ventral bristles. Middle femur with a dorsal subapical bristle and a dorsal basal bristle and with 2 stout, anterior bristles, 1 at basal and 1 at outer third; this tibia bears stout, oblique bristles, 2 extremely long, anterodorsal, 3 long posteroventral and shorter, weaker bristles, 2 or 3 dorsal, 6 or 7 posterior; in addition there is a single long, stout, ventral bristle at the outer fourth. Apex with 12 bristles. Anterior femur with 3 long, dorsal bristles but with only fine, long hairs ventrally; their tibia bears 5 to 7 dorsal, 3 long posteroventral, and 3 short, weak posterior bristles. Tarsi end in long, fuzzy pulvilli, a long, stout, tapered empodium, and strongly arched, sharp claws.

Wings: The marginal cell closed with a long stalk. First posterior cell narrowed, fourth posterior cell closed with a short stalk; anal cell closed. Second basal cell ends in 3 veins, the middle vein short; the vein closing the fourth posterior cell slightly arched, not quite in line with the closing vein of the discal cell. Alula large; ambient vein ends with the second posterior cell.

Abdomen: The abdomen coarsely punctate; at the base as wide as the mesonotum but slightly more narrowed beyond and the abdomen with nearly parallel sides. Pile of abdomen abundant but short, stiff, appressed and setate, longer and finer along the lateral margins. Sternites with scattered, fine hairs. Stout bristles present on all tergites; first tergite with 4 or 5, second with 2, remaining tergites with 1 bristle placed in the middle laterally. The last tergite may bear 3 or 4 bristles. There are seven tergites present in the male, the seventh very narrowly exposed below the cuplike rim of the sixth. Female with six tergites, the seventh completely concealed. Male terminalia completely hidden and recessed within the cuplike apex of the abdomen and exposed to view only ventrally; dorsal processes divided. Female terminalia form a short and minute, projecting process which is concealed beneath the last tergite. In neither sex is the abdomen as strongly cupped as in *Atomosia* Macquart.

Distribution: Neotropical: *Aphestia annulipes* Macquart (1838) [=*brasiliensis* Schiner (1866)]; *calceata* Schiner (1867); *mexicana* Williston (1901); *nigra* Bigot (1878).

Australian: *Aphestia chalybaea* Roeder (1881).

Genus *Cyanonedys* Hermann

FIGURES 280, 646, 1312, 1321, 1600, 1601, 2108, 2163, 2164

Cyanonedys Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 128, 1912. Type of genus: *Cyanonedys leucura* Hermann, 1912, by original designation.

Large and robust flies without punctured surface. Stout bristles are present on the lower face and subepistomal margin and usually the upper face. The outer fourth of the third antennal segment has an excision and is attenuate towards the apex. Proboscis short and truncate. Male terminalia not wholly concealed. The end veins of the discal and first posterior cells are aligned. Ricardo (1912) described several of the Hermann species of *Cyanonedys* under the genus *Clariola* Kertész. Length 12 to 22 mm.

Head, lateral aspect: The head is long, the face conspicuous without being produced. The occiput is moderately developed and retreating above and below; it bears dense pile and bristles, confined to the dorsal third, which may be quite weak or strong and always set far from the eye margin. The proboscis is robust, ventrobasally swollen, with truncate apex bearing a distally directed circlet of numerous, long, bristly hairs; base with numerous, long, bristly hairs below. Palpus minute, the basal segment small and more or less fused; the second segment is cylindrical, with numerous hairs apically. The antenna is attached at the upper third of the head, elongate, comparatively slender, and longer than the head; the first segment is slightly longer than the second. Both segments have abundant, bristly pile below and the first has 1 or 2 stout, long, bristles ventrally; the second segment bears 2 or 3 long, sometimes partly stout bristles dorsally near the apex. The third segment is of uniform width to the outer fourth where there is a small incision with a spine and beyond this point the antenna is attenuate to a blunt point.

Head, anterior aspect: The head is less wide than the thorax; the face is wide and about a fourth the head width, with nearly parallel sides; it is densely pubescent with long, bristly pile and slender or stout bristles, usually densely beset and especially stout ventrally. The front is slightly divergent, the vertex equally convergent; the front is short and pollinose, with a deep, V-shaped lateral groove; the vertex is deeply excavated, with slanting sides and a high prominent ocellarium having vertical sides on the upper half and bearing 1 to 3 pairs of bristles between the ocelli, besides some postocellar setae.

Thorax: The mesonotum is shining, apilose except below the supraalar and postalar bristles. The pile is dense, short, fine, curled, appressed or sometimes longer and always longer and erect along the anterior margin. The discal pile is undifferentiated. Humerus with long, bristly pile. Lateral bristles long and stout or slender; they consist of 2 or 3 notopleural, 4 or 5 supraalar, 2 or 3 postalar bristles; scutellum with 4 or 5 pairs of stout bristles or the whole margin with 1 or 2 rows of long, slender bristles or bristly hairs. The discal pile is abundant, long and bristly, appressed laterally or erect. Pleuron without bristles except on the metapleuron where there is a wide, vertical band of numerous, very long, slender bristles, and also 1 long, stout, mesopleural bristle. Propleuron, upper border of the mesopleuron, upper corner of the sternopleuron and the posterior hypopleuron with some bristly hair. Metanotal callosity with stout bristles and pile. Prosternum fused and continuous. Metasternum pilose; postmetacoxal area with a complete arch of chitin.

Legs: The femora are quite stout and a little swollen; the hind femur and its tibia are somewhat lengthened, the tibia also stout. Pile rather long and shaggy, bristly and appressed. Ventral surface of the hind femur and its tibia with a dense or scattered submedial band of erect pile. Bristles of the legs range from slender to stout, all of them exceptionally sharp and attenuate and tending to be stouter at base. The dorsoventral bristles of the middle tibia are especially long. Hind femur with 3 or 4 unusually stout, ventrolateral bristles on the outer half and several smaller, dorsolateral bristles on the outer half and less prominent, numerous, dorsomedial, distal, bristly hairs; base below with 2 or 3 stout bristles. Middle femur with numerous, slender bristles or bristly hairs dorsally, posteriorly and ventrally. Anterior femur similar to the middle pair. Posterior tibia with about 15 weak, dorsomedial bristles, 8 or more dorsolateral bristles, 4 or 5 of which are quite stout and 2 stout ventrolateral bristles; the long anterodorsal and posterodorsal bristles of the middle tibia contain 4 to 7 above and 3 or 4 below. In general the tibial bristle rows are rather irregular, the elements grading off into numerous, long, bristly hairs. Claws sharp, pulvilli and empodium well developed.

Wings: The wings are broad and tinged with brown; the stalk of the marginal cell is long; the posterior branch of the third vein ends far behind the wing apex. The stalks of the fourth posterior and anal cells are long; end vein of discal and fourth posterior cells aligned in the same plane. Alula short; ambient vein complete.

Abdomen: The abdomen is robust, shining, without punctures except sometimes on the middle of the basal segments. The abdomen is unusually convex, the sides nearly parallel, or the apex slightly wider. Pile of the abdomen matted and appressed on the first two tergites, dense and erect on the sides of the remaining tergites or flat appressed throughout the whole abdomen. All tergites with 2 or more very stout, lateral bristles. Males with seven tergites, the seventh prominent and large. Females with seven tergites, the seventh large, the eighth completely concealed, the ninth with a medial, discal cleft and mostly concealed, or sometimes entirely recessed beneath the seventh tergite. Male terminalia large and short but not concealed, rotate one-half. The epandrium has a wide, circular excision.

Distribution: Australian: *Cyanonedys hornii* Hermann (1912) [=*albohirta* Ricardo (1912)]; *leucura* Hermann (1912) [=*nigrescens* Ricardo (1912)]; *lugubris* Hermann (1912) [=*aurifacies* Ricardo (1912)].

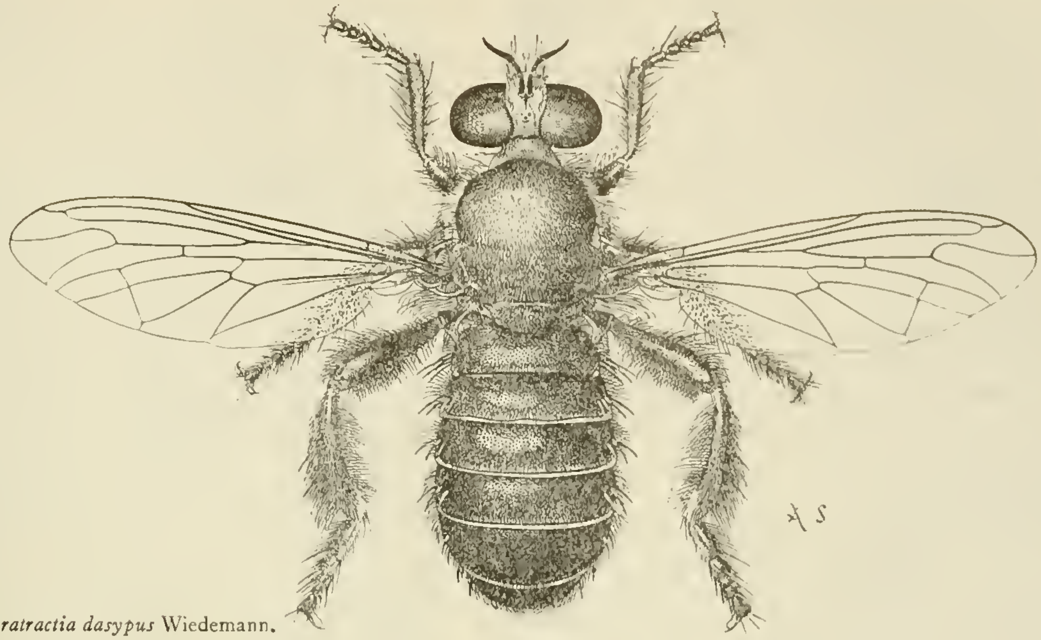
Paratractia, new genus

FIGURES 228, 281, 639, 1280, 1289

Type of genus: *Laphria dasypus* Wiedemann, 1828.

Exceptionally broad, robust flies, the abdomen is considerably wider than the thorax. They are densely, minutely punctulate, with short, appressed pile. Tergites with 2 or 3 pairs of stout bristles laterally; the wings have the end vein at the discal and fourth posterior cells in exact alignment. The face is rather wide; the elongate third antennal segment bears a dorsal, spinous notch in the middle. Related to *Atomosia* Macquart, they are rather readily separated by the swollen hind femur, the swollen and arcuate hind tibia, both of which bear dense, bristly pile on dorsal and ventral surfaces. Hind basitarsus similarly swollen and pilose. In addition the chitinous bridge of the postmetacoxal area, while complete is exceptionally short or narrow. Length 8 mm.

Head, lateral aspect: The face is plane in profile and the upper part is quite short; it is moderately produced or elevated below at the epistoma and the epistomal margin is gently convex. The subepistomal area is long, plane and only moderately oblique. The occiput is short, visible throughout the length of the head but tapered to an end almost at the extreme vertex; the eye is gradually and rather narrowly recessive on the lower portion but plane throughout most of its length. Pile of occiput dense, exceptionally fine and rather long on the ventral half, it continues fine though shorter and more scanty, at least up to the upper third of the head; the bristles are quite short, not or scarcely extending above the eye and all slender and pale. The proboscis is rather slender, directed obliquely forward and downward; the apex is bluntly pointed above and below with stiff pile which curls outward or forward. There is a quite high, conspicuous, dorsal ridge which begins to be prominent subbasally, rises, and then tapers gradually down to near the apex. The basal half of the proboscis below gently swollen and also swollen a little laterally so that only the apical half is nearly subcylindrical. The basal pile is mostly lateral and consists of long, bristly hairs. The proboscis, if directed forward, would barely, perhaps not at all extend beyond the face., Palpus clearly of two segments, the first segment rather robust, convex below and excavated, with 7 or 8 long, fine bristly hairs, and free both medially as well as laterally; second seg-



TEXT-FIGURE 27.—*Paratractia dasypus* Wiedemann.

ment cylindrical, rather narrow, the attachment still more narrow, with 4 or 5 long, bristly hairs ventrally and 2 or 3 at the apex.

Antenna attached only a little above the middle of the head. It is elongate and slender, the first segment is 1⅔ times as long as the second segment. Third segment 1½ times as long as the combined length of the first two; it is of nearly uniform thickness, tends to be a little swollen ventrally a short distance from the base, and dorsally bears near or just beyond the middle a distinct, shallow incision with a bristly spine. Apex bluntly pointed, slightly narrowed and pubescent. Medial surface with a long, oval area of shorter pubescence reaching back to the basal third.

Head, anterior aspect: The face below antenna is a little more than a fourth the head width and scarcely divergent below. The pile of the face is long and fine on the dorsal half and curved downward, a little more dense and slightly bristly in character on the lower portion of the face and there is a fringe of 6 pairs of quite slender, pale, much longer, bristly hairs, which are transversely or circularly across the epistomal margin and on the upper half of the lateral subepistomal margin. The front is rather short owing to the deep excavation of the vertex; the latter has vertical sides. The front laterally bears a shallow fossa. Sublateral margins of the front with 5 or 6 slender, bristly hairs, the swollen, medial portion with a row on either side of 3 or 4 hairs. The ocellarium is large and high, with nearly vertical sides, and it is placed anteriorly though not visible in profile. Ocellarium with a pair of long, only moderately stout, reddish bristles, divergent and curved backward.

Thorax: The mesonotum everywhere densely, flat appressed, short, curled, brassy pilose. The lateral bristles consist of 1 stout, black notopleural and 1 quite slender, stiffened hair on front of this bristle; supraalar with 1 long, black bristle, postalar with 3 black bristles. The scutellar margin has 4 stout bristles and there are fine, long hairs in front of the scutellum. Disc of scutellum with only short, subappressed, yellowish pile. Mesopleuron on the upper three-fourths with numerous, appressed, bristly hairs and with a stout, rather long, reddish bristle on the posterior margin below the wing and an additional slender black bristle above it. Sternopleuron with scattered, fine pile dorsally, more abundant pile anteriorly. Pteropleuron apilose, posthypopleuron with 3 or 4 long, stiff hairs above and numerous, fine hairs below in a vertical row. Lateral slopes of the metanotum with 5 short, stout, reddish, quite spinous bristles and with other pile below. Propleuron with only stiff pile posteriorly, bristly pile ventrally, the anterior pronotum however, with 6 or 7 stout bristles on each side. Nearly the whole of the lateral metasternum with abundant, fine pile; the ventral metasternum with a few scattered hairs; postmetacoxal region membranous; the tegula has a few, fine bristles.

Legs: The hind femur is rather considerably thickened, especially on the distal half, and bears a dense brush of subappressed, stiff, reddish to blackish pile on the distal half of the dorsal surface, together with a few, slender, blackish bristles intermixed near the apex. Lateral margins with dense, moderately long, dark pile and 1 stout, brownish yellow, oblique, lateral bristle at the outer third. Ventral margin with a dense brush of erect, rather fine, brownish black pile. Tibia distinctly enlarged and slightly compressed laterally; it is arcuate and bears a dense band of very long, oblique, brownish dorsal pile continued over the edges of both medial and lateral margins, but shorter. There is an equally conspicuous, ventral band from base to apex. The tibia has 4 lateral and 2 dorsal long, stout, curved bristles that protrude only a little way beyond the long pile. Hind basitarsus swollen with long, dense brush of oblique, brownish black pile dorsally. Middle femur with a weak bristle anteroventrally at the outer third and a still weaker bristle posterodorsally at the outer fourth. Its tibia has 4 long, stout, curved, oblique, reddish bristles anterodorsally with 3 or 4 additional, shorter, more slender, black bristles and more numerous, stiff, black bristly hairs. Posterior surface with 2 long, yellow bristles on the outer third, 2 more slender, equally long, black bristles near the base; all of these are well mixed with dense, fine, but stiff, black pile.

Anterior femur without bristles but with fine, long, blackish hairs dorsally, shorter appressed reddish brown pile dorsally and similarly colored, fine, erect, long hairs below; its tibia has inconspicuous bristles, 7 weak, fine, dorsal and a double row with additional, fine, stiff hairs towards the base and other shorter hairs intermixed. The outer two-thirds of the ventral surface has a dense, brassy yellow mat and near the middle 4 quite long, fine, oblique, brassy yellow hairs, and on the apical fourth 1 long, stout, quite flat appressed, brassy bristle. Claws very strongly bent at the apex to a right angle, arched and rather blunt; pulvilli nearly as long as claw; empodium long and slender.

Wings: The marginal cell closed with a medium stalk. The anterior branch of the third vein is strongly arched as its base, the whole vein slightly sigmoid. First posterior cell open, only slightly narrowed. Fourth posterior cell closed with a short stalk; anal cell likewise. The end vein of the discal cell and fourth posterior cells are quite aligned. Alula narrow. The ambient vein ends at the end of the second posterior cell.

Abdomen: The abdomen is broad and robust, wider than the thorax; the base of the abdomen is slightly more narrow; the whole abdomen is strongly arched from a lateral profile and drooping, densely flat appressed, microscopically short pilose. The pile is black, except postmarginally, where it is yellow, except on the last tergite. Postmargins of second to fifth tergites narrowly whitish, sides of first tergite with a vertical row of 5 light brown, rather stout bristles. Second tergite with a similar row of 5, the third tergite with 5, the fourth with 3, the fifth and sixth tergites with 2 bristles. There are seven tergites visible in the female, sixth as long as the fifth, the seventh extremely short, forming a narrow lip. Female terminalia completely hidden by the strongly cupped, distal portion of abdomen consisting of two small, flaplike lobes.

Distribution: Neotropical: *Paratractia dasypus* Wiedemann (1828).

Genus *Epaphroditus* Hermann

Figures 261, 658, 1344, 1353, 2145, 2158

Epaphroditus Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 117, 1912. Type of genus: *Laphria placens* Walker, 1865, by original designation.

Rather small flies, distinguished by the slender femora and tibiae with their long bristles, the short, but erect brush of long, scaly pile at the ventral apex of the hind tibia, the prettily banded wings, the rather narrow face and the quite long, slender antenna in which the third segment bears a dorsal incision with spines at or before the middle. Moreover, the polished, punctate, metallic abdomen of seven tergites bears prominent lateral bristles and the postmetacoxal area is arched and chitinized. The face is longer, more narrow than in *Atomosia* Macquart but the principal difference lies in the fact that the last tergites do not form a pocketlike cup as they do in *Atomosia*. Length 10 to 11 mm.

Head, lateral aspect: The face is almost or quite plane with the eye margin on the upper half, but slightly produced beyond the eye on the lower portion; the whole face is nearly plane and slightly receding; it is chiefly apparent in profile because of the mild recession of the eye posteriorly. The face is comparatively high, the eye rather short and high and distinctly narrowed below. The occiput is completely obliterated laterally by the eye, except on the ventral recessive portion; the pile is only moderately abundant but coarse, longer ventrally and with 10 short, weak bristles beginning above the middle. The proboscis is small, short, cylindrical, slightly constricted or narrowed in the middle and barely longer than the face; it is truncate apically and slightly oblique from below; the apex bears numerous, long, stiff hairs on all sides. There is a tuft of 3 or 4 slender, bristly hairs ventrolaterally at the base and a low, transparent dorsal ridge on the basal half; this ridge is characteristically directed horizontally forward or slightly downward. Palpus minute, short, cylindrical with 3 or 4 slender bristles at the apex; the number of segments is not determined. Antenna is attached at the upper third of head and is unusually elongate and slender; the first segment is about three times as long as the second, the second is quite short. The third segment is approximately twice as long as the first two combined and somewhat compressed laterally, of uniform width; the apex is straight below and arched to a blunt point apically; this segment has a dorsal, spine-bearing incision. First segment with 1 long, slender bristle in the middle ventrally, another short bristle nearer the apex, and some appressed bristly hairs ventrally and a few setae dorsally. Second segment with a rather long group of setae dorsally and ventrally.

Head, anterior aspect: The face below antenna is about a sixth the head width and slightly wider at the epistoma. Subepistomal area quite small, concave, slightly oblique. The face is densely appressed pubescent with a narrow, submarginal band of matted and more erect pubescence; scales are absent, the upper part of the face has 7 or 8 long, slender, black bristles scarcely more than bristly hairs; subepistoma laterally with a widely spaced fringe of 4 similar, stouter black bristles; the middle face on the lower fourth has a rather dense patch of long, yellowish, somewhat flattened hairs; these are about two-thirds as long as the long slender bristles. Front quite short, pubescent, with 2 or 3 bristly hairs on the eye margin opposite the antenna. Vertex deeply excavated, with strongly sloping sides; the ocellarium is moderately large and high, with very steep sides and comparatively narrow at the top, steep and abrupt behind. It bears in the middle a pair of long, slender, divergent bristles and behind 2 quite short bristles. Anterior eye facets greatly enlarged.

Thorax: The pleuron is densely, minutely appressed pubescent on a diagonal band from wing to prosternum and continuing on the anterior coxa. Posterior pleuron less conspicuously pubescent. There tends to be a similar band of brightly colored pubescence, however, running over the posthypopleuron and the posterior coxa. Mesopleuron, including the humerus, shining and bare. Pile of mesonotum dense, bristly and suberect. Acrostical and dorsocentral elements not differentiated; the humerus has pile similar to the dorsum. The lateral bristles consist of 1 short, slender notopleural, 1 long, moderately stout supraalar, 1 equally long, slender postalar. The scutellum has 3 pairs of long, bristly hairs and considerable, additional, shorter, bristly pile. Scutellum moderately thick, only slightly convex, with a distinct impressed rim, with bristly pile on the disc and together with the mesonotum strongly punctulate. Propleuron with a tuft of stiff pile ventrally; pronotum with weak bristles; the upper margin of the mesopleuron with short pile, its posterior corner with a long, slender but distinct bristle; pteropleuron apilose; metapleuron with a vertical band containing 5 or 6 long bristles, and some additional pile. Hypopleuron and the postmetasternum with abundant, long, fine pile; lateral slopes of the metanotum with a patch of abundant, bristly hairs and several stout bristles. Ventral metasternum chitinized, isolated and bearing long, fine pile. Postmetacoxal area long, with a stout chitinized arch. Tegula pubescent only.

Legs: All the femora are a little swollen distally; on the hind femur the lateral surface, and the posterior surfaces of the other femora are almost bare. Ventral medial surface of this femur with a fringe of dense, long, fine, pale, erect pile confined to the middle three-fifths. There are also 3 quite long, basally stout, attenuate, ventrolateral bristles on the basal third which cross one another when the legs are adjacent. The hind femur has at the apical third 1 dorsolateral, nearer the apex 1 dorsal, and at the apex a pair of short bristles or bristly hairs; laterally there are 2 bristles. Ventral surface of the hind tibia with 3 exceptionally long, outwardly curved, slender, pale bristles on the distal half with a shorter bristle before the middle; otherwise this ventral surface has only 12 or 15 short, bristly hairs except at the apex where there is a conspicuous, very dense tuft of nearly erect, stiff pile, followed medially and ventrally at the apex with appressed, bristly setae. Hind tibia with 4 bristly hairs dorsomedially, but 3 very stout, long, attenuate bristles laterally. Middle femur with a stout anterodorsal bristle beyond the middle, the ventral surface with a fringe of long, bristly hairs. On the middle tibia, oddly, it is the anterior bristles which are emphasized, there being 3 quite long, very stout, attenuate bristles, 1 ventrolateral near the base and 2 lateral, 1 before and 1 after the middle; also 5 shorter, pale, more slender posterior bristles, 3 or 4 still shorter, posteroventral and 2 exceptionally long, pale, ventral bristles, 1 at the basal fourth and 1 just beyond the middle.

Anterior femur with similar, stout, anterior bristles; its tibia also similar with 3 exceptionally long, ventral bristles, the outer 2 longest and stout and fully half as long as the tibia, and a fourth bristle still shorter and more slender, placed basally; also 3 very long, stout, posteroventral bristles. The anterior tibia also has anterodorsally and posterodorsally 4 or 5 long, slender, bristly hairs, others posteriorly and ventrally. Basitarsus slender and elongate and with long exaggerated bristles. Tarsi end in slender, sharp claws, strongly bent at the apex; pulvilli well developed, the empodium long and bladelike.

Wings: The wings are characteristically with 2 or 3 brown bands, sharply delimited against a greyish hyaline remainder. Marginal cell closed with an exceptionally long stalk. First posterior cell not narrowed; end vein of the discal cell almost exactly in line with the end vein of the fourth posterior cell, the latter cell closed with a short stalk; the anterior crossvein enters the discal cell before the basal fifth. The anal cell is closed with a short stalk; the second basal cell ends in 3 veins, middle vein short. Alula a little wider than the costal cell; costal setae isolated and stout; ambient vein complete.

Abdomen: The abdomen is elongate but shorter than the wing and robust; it is not quite as wide as the mesonotum; the sides are nearly parallel, strongly convex posteriorly; the lateral margins dinstinctly corrugate, the base of one set within the apex of the preceding; the whole surface grossly punctate. There are seven tergites in the female, the seventh is three-fifths as long as the sixth or as little as two-fifths. Terminalia almost concealed in lateral profile but the last two tergites are not produced into a down-turned, cuplike pocket as in *Atomosia.* Pile abundant but minute and suberect, with a dense, fringelike patch on the basal corners of each tergite. Sides of the tergites characteristically with stout, long bristles in the middle: 3 on the first tergite; 1 or 2 on the second tergite, and 1 on the side of each of the third to seventh tergites inclusive. Female terminalia rather short and inconspicuous, with 2 minute, slender, dorsal protrusions almost hidden.

Distribution: Oriental (Papuan subregion): *Epaphroditus placens* Walker (1865) [=*conspicua* Wulp (1872)]

Genus *Hybozelodes* Hermann

FIGURES 217, 653

Hybozelodes Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 197, 1912. Type of genus: *Hybozelodes nigellus* Hermann, 1912, by original designation.

Small, slender, dark flies of the general appearance of *Atomosia* Macquart or *Atractia* Macquart. The antenna in *Hybozelodes* ends in a short, plumose microsegment, instead of a long style as in *Atractia* or bluntly as in *Atomosia.* The end vein of the fourth posterior crossvein is offset from the posterior crossvein by half the length of this crossvein and the lower end vein of the fourth posterior cell forms an acute angle. Length 6 to 8 mm.

Head, lateral aspect: The head is of moderate length and strongly convex anteriorly. The face is scarcely visible in profile, except below as a very low protuberance which is gradually elevated. Occiput with a row of 6 short, quite stout, black bristles placed deeply submarginally on the upper half of the head. The proboscis is extremely short, cylindrical, basally thickened and bears a dorsal crease. The apex is subtruncate and pilose, the base with a few long hairs. Palpus minute, cylindrical, short; at the apex are 3 or 4 relatively short, stiff bristles. Antenna elongate; the first segment is twice as long as the beadlike second and bears 1 exceptionally long, conspicuous bristle. Third segment widest near the base and gradually and strongly attenuate beyond the dorsal surface; at the middle it is plane with an incision and spine; the apex of this segment bears a small, short yet distinct, subplumose microsegment.

Head, anterior aspect: The face below the antenna is narrow and slightly divergent below. On each side of the face is a vertical row of scattered, black bristles of varying lengths; the upper 2 are of medium length, the submedial pair below it is slightly shorter, the next pair is located near the middle of the face and is rather long and stouter, followed by 2 other still lower pairs which are equally stout and long. The lowest part of the face has laterally 3 bristles of decreasing length, with the uppermost longest; as a result there are on each side of the face submedially 7 rather long, divergent bristles besides, still more lateral in position, about 7 other shorter, weaker, more slender hairs. Sides of the front with 2 or 3 slender bristles. Vertex excavated. Ocellar protuberance moderately high with vertical sides. Above the front ocellus there is a pair of long, stout, black, divergent bristles curving backward. Anterior facets moderately enlarged in the middle.

Thorax: The mesonotum is polished and shining, the pile abundant, long, subappressed and black. The lateral bristles consist of 1 notopleural, 1 supraalar, 1 postalar, and 1 pair of quite long, stout bristles on the scutellum besides 2 pairs of short, weak bristles. Mesopleuron with 1, hypopleuron with long and short pubescence and 2 or 3 long, slender hairs; metapleuron with a fan of 6 long, slender, downwardly curved bristles. Metanotal slopes bulging and set with long, abundant pile and 2 or 3 weak bristles. Lateral metasternum pilose. Postmetacoxal area short, not as long as wide, but strongly chitinized.

Legs: The hind femur is rather slender and all the femora are polished black. The hind femur has a dorsal row of 6 bristles, the bristle at the outer fourth is longer and stronger; in addition there are a few shorter, appressed hairs. Lateral surface with 1 long, quite strong bristle just beyond the middle and with a ventrolateral row of 5 or 6 slender, bristly hairs, besides 1 quite long, slender, ventral bristle, a medial row of 7 long, slender, ventral bristles and a medial row of long, slender, delicate hairs. In addition, ventrally there is a rather abundant band of moderately long, fine pile consisting of some 50 hairs. The hind tibia is slightly and gradually thickened towards apex; it bears long, fine, erect, ventral pile forming a band which changes to short, appressed, somewhat flattened, matted pile at the extreme apex. The ventral margin has 4 moderately long, ventral, black bristles, erect but curved distally; dorsal surface with 1 rather short, basal and 1 still shorter submedial bristle, 1 long, stout, medial and 1 equally long, stout bristle placed at the outer sixth. In addition there are 3 very stout, long, somewhat oblique, curved, lateral, black bristles. Apex laterally with 2 long, stout bristles; medial bristles weak. Middle femur with 1 long, anterodorsal bristle at the outer third, 1 equally long, pale, anterior bristle below it. Dorsal and ventral surfaces of middle tibia with extremely long, stout, reddish yellow bristles, somewhat oblique and somewhat anterior in position; there are 3 above and 3 below and 4 or 5 weaker, much shorter, anterior bristles.

Anterior femur with a posterodorsal row of 4 bristles all of which, except the basal one, are long and stout. Anterior tibia with 3 extremely long, slender, pale bristles posteroventrally; 4 dorsal bristles, the outer element much longer, the basal elements short and weak; in addition 1 still longer, subapical anterodorsal bristle. Apex with 3 bristles. Claws sharp, rather short; pulvilli four-fifths as long as claws; empodium slender, two-thirds as long as claw, somewhat thickened at the base.

Wings: The marginal cell is closed with a long stalk. Fourth posterior cell closed with a short stalk. Vein closing fourth posterior cell offset from end of discal cell by more than half the width of the discal cell; end of second basal cell with 3 veins. The ambient vein ends at the end of the second posterior cell.

Abdomen: The abdomen is slender and subcylindrical, slightly but distinctly wider distally; it begins to widen at the end of the second tergite; the abdomen is polished and shining black and not punctulate. Sides of the second tergite with vertical row of 5 long, weak, radiating, pale, bristly hairs. Remaining tergites without bristles. The scattered hairs on the sides of the second and third tergites are rather long and fine. Middle of the sides of the seventh tergite with 2 or 3 moderately long, black, bristly hairs. There are six tergites almost equally developed, the seventh very short. The female terminalia are minute and scarcely protrude beyond the seventh tergite.

Distribution: Neotropical: *Hybozelodes acuticornis* Carrera (1945); *albipes* Hermann (1912); *nigellus* Hermann (1912); *platycerus* Hermann (1912).

Genus *Lophoceraea* Hermann

FIGURES 263, 678, 1326, 1336

Lophoceraea Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 193, 1912. Type of genus: *Lophoceraea pennata* Hermann, 1912, by original designation.

Small, dark colored flies which suggest *Atractia* Macquart in general appearance. The third antennal segment is rather similar but is more slender and subplumose beginning at the dorsal spine on the outer third; the apex bears a plumose, short style instead of a microsegment. The end veins of the discal and fourth posterior cells are aligned. The face is exposed laterally only below, and it is short even at the lowest point; the face is narrow with nearly parallel sides, a few fine hairs and 3 pairs of long, slender bristles arranged ventrally but also vertically. Length 6 to 8 mm.

Head, lateral aspect: The head is of moderate length and strongly convex anteriorly; the upper half of the posterior aspect is nearly plane, the lower half slightly recessive. The face in profile does not extend beyond the eye, except for very slight elevation below. The occiput is narrowly visible throughout most of its length; there is a row of 8 slender, pale bristles on the upper half placed deeply submarginal. Proboscis relatively short, basally swollen and cylindrical, with pilose, obtusely rounded apex; it is directed almost straight downward. Palpus minute, cylindrical, bearing long bristles at the apex. The antenna is slender; the first segment is barely longer than the second and bears a long, strong, black, oblique bristle below in the middle, and a short, dorsal, apical bristle; the second segment is beadlike with a long dorsal and short apical bristle and below 2 short and 2 medium long, black bristles. The third segment is at least twice as long as the first two segments and gradually widened at the base; and beyond the base it is of uniform width; in the middle it bears a dorsal incision and spine and at the apex there is attached a long, tapered style which is short plumose; this style is nearly as long as the main part of the third segment. The apex of the third segment to which the style is joined ends obliquely and bears medially a long, oval, scooped-out depression just before the apex.

Head, anterior aspect: The face is unusually narrow, densely micropubescent with a few, short, delicate hairs on the upper three-fourths. There is a medial pair of bristles and below these elements there is a group of 3 submedial bristles and still lower there are submedial, pale, long, slender bristles. The vertex is deeply excavated; the ocellar protuberance high with vertical sides and bearing a pair of long, stout, black, divergent bristles which are curved backward. Anterior eye facets slightly enlarged.

Thorax: The mesonotum is short, appressed pilose throughout with a few, longer hairs along the anterior margin and along the humerus. Humerus large, shallowly convex and distinctly fused posteriorly and medially with no line of demarcation. The mesonotum has long, black, rather stout bristles which consist of 1 notopleural, 1 supraalar, 2 postalar, and 2 pairs of especially stout, long scutellar bristles. Scutellum convex and pubescent with a few scattered hairs. Mesopleuron with 2 bristles of which 1 is short, 1 is long and stout. Hypopleuron with long and short pubescence and 2 or 3 long hairs. Metapleuron with a vertical, double row of 10 to 12 long, fanlike, downward curved, slender bristles. Metanotal slopes with numerous long hairs.

Legs: The hind femur is distinctly but slightly thickened toward the outer half and bears a dorsal row of fine, rather long, weak, pale bristles; the longest elements are near the middle; also there are 3 apical dorsomedial bristles in a row and with a lateral row of 10 short, fine, weak bristles, except that 1 of these just beyond the middle is long and stout, reddish yellow and microtuberculate. Below, this femur has a row of 5 or 6 long, fine, pale hairs and ventromedially it has 3 extraordinarily long, pale, bristly hairs of increasing length from the base; the element in the middle of the femur is longest. In addition there is also long, erect, scanty pile ventrally consisting of 30 to 40 hairs. Hind tibia with some long pile ventrally which is more abundant beyond the middle and which is distinctly oblique; the bristles consist of 3 extremely long, pale, slender bristles which are curved outward on the apical half; dorsal bristles are 3 short, basal elements and 2 quite long, slender, distal elements. Laterally there are 2 very long bristles and 2 longer, stouter, curved, oblique, yellow, lateral bristles. Middle femur with 3 dorsal bristles and 1 anterior bristle at the outer fifth and 7 long, slender, erect hairs ventrally. Middle tibia with 3 exceedingly long, oblique, anterodorsal and 3 anteroventral bristles. Anterior femur with 3 dorsal and dorsomedial bristles near the apex; its tibia has 5 or 6 short, dark brown bristles dorsally and 3 extremely long, fine, yellow bristles posteroventrally. First and second tarsal segments with only moderately long bristles at apex anteriorly and posteriorly and with a shorter pair above; the basitarsus has a long, posterior bristle at the base. Claws sharp, the pulvilli nearly as long as claw, empodium as long as claw and swollen at the base.

Wings: The marginal and fourth posterior cells each closed with a moderately long stalk; anal cell closed, the stalk evanescent. The veins closing the discal and fourth posterior cells are confluent. Alula narrow; the ambient vein ends at the end of the second posterior cell.

Abdomen: The abdomen is subcylindrical on the posterior portion but somewhat flattened toward the base, which is nearly as wide as the thorax, the whole micropunctate. The sides of the first tergite bear 5 or 6 pale bristles and the second to fourth tergites each bear a moderately stout, pale, lateral bristle in the middle and besides also 1 long, pale, slender, subbasal hair, present also on the fifth tergite. Pile of the tergites appressed, scanty and black. Posterolateral margins of the tergites densely silvery pubescent. Male terminalia small, inconspicuous and almost completely hidden by the cupped apex of the abdomen. The middle of the curved-under, lateral margin of the sixth tergite has a rather long, moderately stout, curved bristle similar to those present on preceding tergites. There are six long and well developed tergites; the seventh is short and visible only from the rear.

Distribution: Neotropical: *Lophoceraea pennata* Hermann (1912).

Genus *Othoniomyia* Hermann

Figures 249, 654, 1352, 1361, 1669, 1814

Othoniomyia Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 119, 1912. Type of genus: *Othoniomyia triangularis* Hermann, 1912, by original designation.

Othoniomyia has one subgenus, *Sphagolestes*, new subgenus.

Small, black, shining flies without punctures on thorax or abdomen and the legs with some lighter coloration in parts; tergites without bristles, except on the first tergite. Dorsal spine of third antennal segment and its incision situated at outer third of this segment, but sometimes quite subapical in position. Fourth posterior cell longer than the discal cell, which ends in 1 vein. Ambient vein absent or nearly so. Length 6.5 mm.

Head, lateral aspect: The head is of moderate length and it is rather strongly convex posteriorly as well as anteriorly. The face is not evident in profile, except for a very low swelling situated below on the lower fifth of the face. The occiput is prominent throughout the middle of the head in profile but is obliterated above and below. The upper half of the occiput bears 8 strong, sharp, rather long, black bristles. The proboscis is small, rather short, more or less cylindrical and at the most very slightly compressed; the apex is obtusely truncate and bears a little pile above and below. Palpus minute, cylindrical and composed of two segments; the second segment has 2 or 3 long, slender, pale hairs at apex. Antenna elongate especially on the third segment; the first segment is scarcely or not quite twice as long as the short, beadlike second segment. The third segment is more than twice as long as the combined length of the other segments; at its base dorsally it is angulate and below it is convex and swollen a little ventrally; the apex tends to turn downward and has a short, obscure microsegment which might be easily overlooked and which contains a blunt, central spine, very short. At the outer third dorsally there is also a well developed incision and spine. First segment with a long, ventral seta.

Head, anterior aspect: Face quite narrow and only a sixth of the head width. The small ventral swelling of the face bears an upper and lower pair of rather widely separated, only moderately long, weak, black bristles. Face surface pale, reddish brown micropubescent. The front is quite short, its sides bear 2 or 3 weak, short, black bristles. Vertex deeply excavated; the high ocellar protuberance has nearly vertical sides and bears a pair of moderately long, but weak, black bristles, divergent and curved backward. Anterior eye facets in the medial area strongly enlarged.

Thorax: The mesonotum is more than usually high and convex and strongly abrupt anteriorly with dense, moderately long, brownish black, suberect pile over the whole. Humerus also pilose. There is a single, long, slender, black notopleural bristle, 1 supraalar, 1 postalar and 4 pairs of long, more slender scutellar bristles; no prescutellar bristles. Metanotal slope with a conspicuous tuft of rather long, stiff, reddish brown pile, among which are 5 weak, concolorous bristles. Mesopleuron with a single, long, weak bristle and a few other hairs. The rather convex metapleuron is reddish brown pollinose with a vertical band of 6 or 7 long, slender, yellowish white bristly hairs curved downward at apex. Pronotum with a row of weak, stiff, pale hairs. Hypopleuron with 5 or 6 long, pale hairs. Lateral metasternum with pile. Postmetacoxal area as long as wide, a little constricted and distinctly chitinized.

Legs: The legs are rather slender and very slightly thickened distally. The hind femur is moderate in length with appressed, brown pile above and dorsally at the apical fourth a long, slender, reddish bristle, another nearer the apex but dorsomedial, and still closer to the apex a weak, short, dorsolateral bristle. Laterally there are 2 other quite short, weak bristles on the apical third. The ventral margin bears 3 or 4 extremely long, very slender, white hairs on the basal half and the entire ventral surface has a conspicuous fringe of moderately long, yellowish, fine, erect, unmodified hairs. The hind tibia has a similar fringe and bears 2 long, rather slender, reddish brown, dorsal bristles, 1 situated at the middle, 1 at the basal fourth; dorsally there are 5 short, fine, weak bristles. The apex has weak, poorly developed bristles but the end of the basitarsus has rather long bristles. Middle femur with a rather long, slender, dorsal bristle on the apical third, another anterior bristle on the apical fourth and a few, slightly longer, stiff hairs anteriorly at the apex. The brownish yellow tibia shows rather long, slender bristles which are oblique and especially long ventrally; there are 3 posteroventral elements at basal fourth, just before the middle and a little beyond the middle, with a fourth shorter one at the outer fifth. Anteroventrally there are 4 or 5 shorter, finer bristles; the long, anterodorsal bristles number 3 and each one is matched by a shorter, posterior bristle.

Anterior femur with 2 slender, dorsal bristles beyond the middle; the tibia has 3 dark, posterodorsal and 4 or 5 stiff, yellow anterodorsal hairs and ventrally bears 3 quite long, slender, dark bristles. The anterior basitarsus has quite long bristles at the apex and 1 posteriorly at the base; second segment with slightly shorter apical bristles. Claws short, sharp, strongly curved at the apex; the pulvilli short and oval, about two-thirds as long as the claw and with the ventral and marginal pile unusually long and fluffy; empodium about three-fourths as long as the claw, somewhat thickened at the base.

Wings: The wings are rather broad basally in the type of genus but more narrow in related forms. Subcostal cell narrowed. The marginal cell is closed with a long stalk. The fork of the third vein is beyond the discal cell and characteristically the discal cell is shorter than the fourth posterior cell and thus appears to be closed by one vein. Fourth posterior cell closed with a moderately long stalk, the other posterior cells are widely open; second submarginal cell only moderately flared apically. Anal cell closed and stalked; alula almost eliminated; it is quite narrow and short. The anterior crossvein enters the discal cell at the middle. The ambient vein ends at the apex of the wing.

Abdomen: The abdomen is subcylindrical but slightly flattened across the middles of the first two or three tergites and the basal portion of the abdomen is rather thin, the sides curled over but thin. At the base the abdomen is not quite as wide as the mesonotum and slightly narrow to the end of the second tergite. First tergite three-fourths as long as second. Sides of first tergite with a vertical fringe of moderately long, white pile, and also 3 or 4 long, quite stiff hairs or slender bristles. Sides of the second and third tergites each with 7 or 8 long, stiff, whitish hairs. Remaining tergites with shorter, pale pile. The abdomen is not punctulate; the dorsal pile is fine, pale, and subappressed. The third, fourth, and fifth tergites have nearly parallel sides. In the male seven tergites are visible; the seventh is nearly three-fourths as long as the sixth. The male terminalia are apparently inverted with undivided, shallowly convex epandrial plate and with a pair of widely separated, rather long, slender, clavate terminal processes from the apparent gonopods; these processes are placed at a considerable distance above the ventral plate. Female terminalia minute, the proctiger barely protruded beyond the last tergite; last sternite a little swollen and convex.

Distribution: Neotropical: *Othoniomyia nigrum*, new species: *triangularis* Hermann (1912).

Sphagolestes, new subgenus

Figures 287, 682, 1292, 1301

Type of subgenus: *Sphagolestes nigrum*, new species.

This subgenus differs from *Othoniomyia* Hermann in the character of the third antennal segment. The dorsal spine and incision are distinctly subapical and there is no microsegment at all. This is a shining black fly with black pile and bristles, except on the first tergite, which has white bristles, on pleuron which has white micropubescence, becoming reddish brown dorsally on the mesopleuron. Also the hind coxae and all tibiae and tarsi are dark, reddish brown in color. One species from Sao Paulo, Brazil.

Genus *Protichisma* Hermann

Figures 278, 649, 1293, 1302, 1346, 1355

Protichisma Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 35, 1912. Type of genus: *Protichisma longimanus* Hermann, 1912, by original designation.

Flies of medium size or smaller, characterized by short pile, the very long, first antennal segment and the slightly upward divergence of the face. These characters ally the genus to *Cerotainia* Schiner. It is distinguished by the clavate abdomen and the upper margin of the vertex which is either mostly horizontal without the deep, slanting posterior sides of *Cerotainia*, or is at most shallowly excavated behind. Length 12 mm.

Head, lateral aspect: The head is of moderate length. In profile the face is visible and slightly bulging or protuberant below but never conspicuously gibbous. The occiput is slightly swollen, convex below with scanty, long pile and beginning at the lower third it bears a medial, irregular row of 8 or 9 long, stout, black bristles which are placed far back from the ocular margin; the upper 2 bristles are especially stout and tuberculate. The proboscis is short and directed horizontally forward and distinctly compressed; the subtruncate apex and the base are stouter. The apex has a few scattered hairs and the base laterally and below bears numerous, long hairs. The palpus is extremely minute and cylindrical, with a few long hairs towards the base and a single, stout, apical bristle which is 3 or 4 times as long as the palpus. The basal segment is so short, though wider, and so nearly fused as to be almost nonexistent. The antenna is attached upon a swollen prominence and directed obliquely upward and is quite elongate. The first segment is slender and almost as long as the head and nearly or quite as long as the third segment. The second segment is short and beadlike, with a long bristle above, another bristle more stout below. The third segment has a small, inconspicuous dorsal incision beyond the middle containing a short, bristlelike spine; microsegment absent. The first segment bears a single, long, ventral, bristly hair in the middle, besides short pile dorsally and ventrally.

Head, anterior aspect: The face below the antenna is a fourth the head width and slightly convergent below; the surface is micropubescent, and the face bears 6 to 8 short, fine hairs on the upper half and approximately 10 to 12 long, fine hairs on the lower and protuberant part; laterally the lower face has 4 or 5 additional, fine, golden hairs. The vertex is deeply excavated above; the divergence that begins on the face is continued above so that dorsally the eyes are far apart; the small but protuberant ocellarium bears a pair of long, black, stout, lateral strongly divergent bristles. The posterior ocelli are lateral in position. Anterior eye facets strongly enlarged and the eye considerably flattened anteriorly.

Thorax: The mesonotum is moderately convex with dense, subappressed, short pile across the whole mesonotum. Humerus pilose; notopleuron with a single, black bristle. Supraalar area with 1 black bristle. Postalar region anteriorly with 2 yellow bristles; scutellum without bristles. Scutellar disc convex with appressed, yellow pile. Pleuron coarsely pubescent and flat appressed. The pronotum has 6 to 8 moderately stout, bristly hairs. Posterior border of the metapleuron and the upper border with a few, fine, scattered hairs. Hypopleuron with 7 or 8 moderately long, yellow hairs, and with long and short pubescence. Metapleuron convex with a wide, irregular patch of rather long stiff, yellow hairs or weak bristles. Slopes of the metanotum bullose and with a conspicuous patch of 11 moderately short, yellow bristles. Postmetacoxal area with a well developed chitinized arch, in addition to micropubescence. Prosternum not dissociated.

Legs: The hind femur is distinctly though only moderately thickened and is spindly at the base; the apex is very slightly turned down, and the pile is moderately abundant, subappressed, and rather fine. There is a single quite weak, reddish bristle placed dorsolaterally at the outer fourth; otherwise there are no true bristles present, but there are 4 or 5 long, stout, pale, downward-thrust hairs placed ventromedially on the basal half of the femur and quite abundant, rather short, erect, pale hairs all along the ventral medial surface. Hind tibia slightly and gradually widened to the apex, with erect pile along its ventral margins of the same length and color as on the femur and without bristles, except for 2 rather weak, moderately long, lateral, yellow bristles distal to the middle. At the apex are weak, pale bristles, 2 laterally, 4 or 5 medially, none dorsally. Middle femur with 2 rather well developed pale bristles anteriorly, 1 near the base, 1 at the distal third, and along the ventral margin is a row of long, bristly hairs. Middle tibia with 3 pale bristles posteriorly, 2 long, dorsal elements, and 3 ventral bristles, of which the bristle placed at the basal third is extremely long. Anterior femur with 5 or 6 quite long, ventral, bristly hairs placed on the basal half; anterior tibia with 2 weak bristles dorsally at the apex, a row of 3 or 4 posteriorly and 4 ventrally in which the basal bristle, like that of the middle tibia, is extremely long. Claws small and sharp; the pulvilli are four-fifths the length of the claw; empodium short, less than half as long as the claw, swollen and bulbous at the base.

Wings: The marginal cell is closed with an extremely long stalk. Fourth posterior cell closed with a short stalk. The ambient vein ends just behind the second posterior cell; the alula is small.

Abdomen: The abdomen is distinctly spatulate, or clavate and at its narrowest point at the end of the second segment it is less than five-eighths the width of the fifth segment. The sixth and seventh segments form almost an equilateral triangle but are strongly arched and convex. The pile of the abdomen is rather long, abundant, flat appressed with erect patches laterally near the middles of the first three tergites; the pile is especially long and copious on the sides of the first segment, where it is weakly bristly and all the pile is golden over the entire abdomen. There are no bristles laterally on the tergites except on the sides of the first segment where there is a row of 7 microtuberculate, yellow bristles. Sternal pile long, scanty, subappressed and yellow. Male terminalia small, completely hidden by the cupped-over apex of the abdomen. Female terminalia small, short, protruding beyond the seventh tergite as a small trapezoidal plate which bears a medial, dorsal fissure. Eighth sternite with a medial, concave, basally wide depression; each outer position of the sternite is produced into a flat, obtuse, stout, moderately long, convergent process which is directed a little downward.

Distribution: Neotropical: *Protichisma albibarbis* Curran (1930); *longimanus* Hermann (1912).

Genus *Clariola* Kertész

FIGURES 259, 270, 664, 1262, 1271, 1306, 1315, 1324, 1592, 2113

Clariola Kertész, Természetrajzi Füzetek, vol. 24, p. 404, 1901. Type of genus: *Clariola pulchra* Kertész, 1901, by original designation.

Minute, slender and subcylindrical flies with elongate, drooping, deeply punctured abdomen. The face is exceptionally narrow and in the middle it is less than a sixteenth the head width. The vertex is divergent and deeply excavated as in *Anoplothyrea* de Meijere but the proboscis is not constricted and the third antennal segment is longer, more slender, and is long pubescent. Length 6 mm.

Head, lateral aspect: Head of moderate length and strongly convex in front; posteriorly beginning near the middle, the profile is angularly recessive, leaving the upper and lower halves each plane. The face is visible in profile only as a minute protuberance at the extreme lowest point. The proboscis is short, small, and tapering to a blunt point; it is gathered into a low, thin ridge dorsally. On the apex of the proboscis are numerous, rather long hairs. Palpus minute, cylindrical, with 2 or 3 long bristles at the apex. The antenna is unusually elongate and slender. The first segment is more than twice as long as wide and the second nearly twice as long as wide. The third is nearly twice the combined length of the first two; near the apex it is a little narrowed and bears long, distinctive pubescence both above and below throughout its whole length; dorsally in the middle it bears an incision with spine. First segment ventrally with a quite long, slender bristle in the middle of the segment.

Head, anterior aspect: The face is extremely narrow and less than a sixteenth the head width across the middle of the face; it is slightly divergent below the antenna and more strongly divergent on the lower third. On the minute, ventral protuberance the face bears 2 long, delicate, black bristles, thrust straight forward; situated a little lower down there are 2 more, widely separated, long, pale, drooping hairs followed by 2 or 3 short hairs laterally and even lower in position. On the upper face there are 2 or 3 short hairs. Vertex rather strongly excavated; the ocellar protuberance is high and steep with a pair of long, divergent, stout, black bristles. Anterior eye facets enlarged.

Thorax: The mesonotum is rather high and abrupt anteriorly but only gently convex dorsally. It is everywhere sparsely, subappressed pilose. The humerus is pilose, the notopleuron has a single, long, slender bristle; there is 1 above the supraalar, postalar with 1 short, small bristle. The scutellum has a single pair of very stout, very long, and divergent bristles. Margin of scutellum in addition with some long pile and prescutellar region with rather longer, stiff pile. The pleuron is thinly pollinose and there is a single, distinct, slender, posterodorsal bristle on the mesopleuron. Hypopleuron with 2 long hairs and long and short pubescence. Metapleuron with a fanlike, vertical row of fine, long, delicate, bristly hairs. The metasternum is strongly and distinctly chitinized behind the postcoxa, forming a rather long, arched structure. Lateral slopes of the metanotum long pilose. Lateral metanotal slopes below the scutellum pubescent and with a patch of 8 or 10 long, stiff hairs which include 2 distinct, stout, spinous bristles.

Legs: The hind femur is elongate and rather strongly thickened on the distal half with a fringe of long hairs on the ventral and medial margin; it bears 2 or 3 quite long, slender hairs along the ventral margin and a single, still longer bristle laterally at the outer third, together with a shorter bristle towards the base. Dorsally near the apex is a pair of moderately long, weak, curved bristles. Hind tibia with a ventral fringe of long, abundant, erect pile and 1 extremely long, ventromedial bristle at the basal third, also 1 ventral bristle at the middle and 1 near the apex, 1 ventrolateral bristle at the apical third, 1 shorter bristle near the middle, and laterally at the middle and the basal fourth are placed 2 extremely long, stout, attenuate bristles which are followed by a shorter bristle at the basal eighth. Finally there are 2 dorsal bristles, 1 quite short near the base and 1 very stout and long at the middle; the latter, if lying flat, would reach the apex of this tibia. The apex of this tibia is without special bristles but ventrally at the apex there is a patch of dense, appressed, flattened hairs. The hind basitarsus has a single, very long, stout bristle laterally near the apex and a short ventrolateral basal bristle. The medial surface of the hind basitarsus, beginning near the middle, and on all the remaining segments is gathered together into a peculiar, crimped, low bladelike, linear structure. This structure is also present on the other tarsi. Middle femur slender, with 1 long, anterior bristle at the apical fourth and 3 or 4 quite long, ventral hairs on the outer half; its tibia has 5 or 6 moderately long, slender hairs ventrally and 2 extremely long, ventral bristles; the anterior margin has 2 very long, stout bristles, near the basal third and also just beyond the anterior bristles. Apex with a pair of widely separated, dorsal bristles, and 2 posterior bristles and 2 or 3 ventral bristles.

Anterior femur with 1 very weak bristle at the dorsal apical third and 3 long, weak bristles ventrally; anterior tibia with 2 only moderately long, fine, dorsal bristles and 3 somewhat longer, ventral bristles. On this tibia there are also anterior bristles beyond the middle; the apex is simple, with only a circlet of bristles. Claws sharp, rather short; the pulvilli four-fifths as long as the claw; empodium long, slender, without basal swelling.

Wings: The marginal cell closed with a short stalk. The vein closing the discal cell and the fourth posterior cell form a straight line in one wing and are a little offset in the other wing. The ambient vein ends just beyond the first posterior cell; marginal villi long; alula extremely slender, only a third as wide as the width of the basal section of the costal cell.

Abdomen: The abdomen is slender, subcylindrical, drooping and strongly punctulate; in form it is suggestive of *Atomosia* Macquart, but longer and more slender, with a fanlike, vertical row of 5 rather strong, pale bristles on each side of the first abdominal tergite. Middle of the lateral margin of the second tergite with 1 or 2 rather stout, long bristles. Third tergite with a more slender but distinct bristle and remaining tergites without lateral bristles. Male terminalia visible in profile but not prominent.

Distribution: Australian: *Clariola cyaneithorax* de Meijere (1913); *luteiventris* de Meijere (1913); *pipunculoides* Walker (1865); *pulchra* Kertész (1901); *unicolor* de Meijere (1913).

Genus *Anoplothyrea* de Meijere

FIGURES 265, 674, 1329, 1338, 1574

Anoplothyrea de Meijere, Tijdschr. Ent., vol. 56, suppl., p. 56, 1914. Type of genus: *Clariola javana* de Meijere, 1911, by original designation.

Small, dark, subcylindrical flies in general similar to *Clariola* Kertész. The face is very narrow and the vertex divergent and deeply excavated. The proboscis is constricted at the base, in contrast with *Clariola*, and the apex is obtuse; also it differs in the third antennal segment, which lacks the long pubescence present in *Clariola*. Length 10 mm.

Head, lateral aspect: The head is quite short and as wide as the thorax. The face is not visible in profile except below, where there is a small, short protuberance. Occiput with short, scanty pile below and a pair of moderately long, slender, microtuberculate bristles placed laterally but also rather deeply within the occiput and near the middle of the head in profile. The proboscis is small and short, blunt apically. Palpus minute, the apex with 1 or 2 long bristles; 2 segments present. Antenna elongate and slender; the first segment is a little longer than the second and bears a long, fine, bristly hair below in the middle, a shorter bristly hair beyond it and 2 or 3 short, subappressed hairs dorsally; second segment with 1 or 2 bristly hairs dorsally and a like number below and all of them situated close to the apex. Third segment slightly tapered near the apex, which is bluntly pointed. This segment is a little more than twice as long as the first two segments; dorsally it bears a distinct, but shallow excavation near the middle from which is emitted a distinct but minute, sharp spine directed distad.

Head, anterior aspect: The face is extremely narrow and below the antenna is about a twelfth the head width, widening below. Face cover consists of micropubescence and there are 6 or 7 moderately long, fine hairs projecting outward and below from the small protuberance on the lower face and also an upper and lower pair of quite long, slender bristles followed by an additional pair of shorter hairs laterally and below. The front expands at a rate equal to the face, so that at the vertex the width approximates the width at the epistoma. Ocellar tubercle with sides abrupt and a pair of rather long, stiff, divergent bristles. Vertex deeply excavated and divergent.

Thorax: The mesonotum is rather strongly convex with abundant, short, subappressed pile over the entire anterior part. Humerus pilose, the notopleuron bears 1 rather stout bristle; also 1 supraalar and 1 postalar bristle; the scutellum is convex with a few fine, scattered hairs on the disc and with a pair of rather short, quite weak, marginal bristles set close together. The metanotum is high and abundantly long pilose laterally. Prosternum and propleuron united. A pair of slender bristles is present posterodorsally on the mesopleuron. Hypopleuron with patch of long pubescence and 1 or 2 fine, long hairs. Metapleuron with an especially well developed vertical row of 6 or 7 quite long, fanlike, bristly hairs bent apically. The metasternum behind the hind coxa is elongate, slopes backward, and is completely chitinized.

Legs: The hind femur is elongate and distinctly thickened distally with a very fine, dorsal bristle at the outer fourth and 2 at the apex, and with an extremely long bristle ventrolaterally just beyond the middle, followed by a shorter bristle before and after. Ventral margin with 2 still longer, more slender, bristly hairs near the middle and with some 2 or 3 such hairs, on the basal half, which are not so long but quite ventral in position. In addition there is a dense, ventral medial fringe of moderately long, fine, erect hairs. Hind tibia slightly thickened distally. It is characterized by 4 long, stiff, regularly spaced, laterally placed, reddish brown, microtuberculate bristles; 4 equally long, stout, curved, ventral bristles, also regularly spaced; and 4 or 5 much shorter, finer, dorsomedial bristles. In addition there is a dense fringe of fine, erect, ventral pile nearly as long as that upon the femur. Tarsal segments characterized by extremely long, dorsoapical bristles. Middle femur with a long, prominent bristle anteriorly at the outer third; the middle tibia, as in the hind tibia, is characterized by 4 long, stout, anterior bristles, together with 1 shorter, basal bristle, followed by 5 long, anteroventral bristles. Tarsal segments also characterized by extremely long bristles; 2 are on the basitarsus near the base, and near the apex, there is 1 anterior and 1 posterior bristle, together with a dorsoapical pair. On the second segment the basal bristles are not present but the 4 similar apical bristles are present. Anterior femur with 3 slender, ventral bristles on the outer half; its tibia has 3 long, ventral bristles, 3 dorsal and 3 to 5 posterior bristles, with some additional fine, shorter, scattered hairs. Apex of anterior tibia simple.

Wings: The wings are slender. Marginal cell closed with a long stalk. Fourth posterior cell closed; the end of the discal cell lies adjacent to the end of the fourth posterior cell or very near it, so that the veins closing these cells form almost a straight line. Alula reduced and not wider than the basal section of the costal cell. Ambient vein runs to the alula.

Abdomen: The abdomen is slender, subcylindroid and rather convex; it is bare, with very fine punctures. The pile is extremely short and scanty but the sides of the first segment have a vertical fan of 10 or 12 regular hairs which are long and fine. Sides of second tergite in the middle with a single, long, stiff bristle; bristles absent from the remaining tergites. Male terminalia small, inconspicuous but visible in lateral profile as a basal and distal process. Description drawn from type.

Distribution: Oriental: *Anoplothyrea javana* de Meijere (1911).

Genus *Cerotainia* Schiner

FIGURES 216, 657, 1348, 1357, 2167

Cerotainia Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 673, 1866. Type of genus: *Laphria xanthoptera* Wiedemann, 1828, by original designation.

Ceratotaenia Lynch Arribálzaga, Ann. Soc. Cient. Argentina, vol. 9, p. 52, 1880, *lapsus*.

Flies of small size and dark color, robust, with punctate abdomen sometimes slightly clavate. They are readily recognized by the strongly divergent and posteriorly flared and excavated vertex, together with the exceptionally long, slender antenna. The third segment has a dorsal incision with spine lying beyond the middle. It is distinguished from *Atomosia* Macquart by the above characters and from *Eumecosoma* Schiner by the length of the first antennal segment, which is at least three times as long as the second segment. From *Cyphotomyia* Williston it is separated by long pile, less exaggerated punctation, occipital bristles which are fine or wanting. *Cyphotomyia* is perhaps of no more than subgeneric value. A few species of *Cerotainia* are exceptionally robust and wide, with swollen femora and tibiae. *Protichisma* Hermann is also very close but has longer, subclavate abdomen, less conspicuously excavated postvertex. Length 8 to 14 mm.

Head, lateral aspect: The head is short, the anterior eye profile strongly convex. The face is very short, sometimes slightly elevated below or towards the antennal base. Again it may be nearly as long throughout as the width of the first antennal segment. Occiput in profile scarcely visible, a little more in evidence through the middle of the head. Its pile is fine, abundant or scanty, the bristles where present are placed nearly in the middle of each half of the occiput, few in number, stout above. Proboscis small and robust, the apex obtusely truncate, not extended beyond the face. Palpus minute, the first segment broad and partly fused, the second short and cylindrical, with a few long, ventral hairs. The antenna is attached just above the middle of the head; it is quite elongate and slender and 1½ to nearly 3 times the length of the head. The first segment is unusually long and slender, 3 to 4 times the length of the beadlike second. The third segment is as long or longer than the first two, with dense, short pubescence on the outer portion but never even short plumose. Near but away from the apex is a narrow, elongate excision which is rather inconspicuous and not easily observed and carries a concealed spine. In some species it is quite small. First and second segments with long, bristly hairs; the first segment below near the middle with a long, slender bristle.

Head, anterior aspect: The head is unusually wide, distinctly wider than the thorax and sometimes flattened anteriorly. The face below the antenna is about a fourth the head width and convergent below, its surface micropubescent, with abundant or scanty, bristly pile sometimes distributed over the whole surface. The lower third of the face often has several pairs of slender bristles or bristly hairs. Front strongly divergent with a deep, V-shaped groove on either side; it is pubescent and bears considerable fine pile in some species and sometimes bristly hairs along the eye margin. Vertex deeply excavated, wider than the front, the slanting sides with abundant, long pile; the high, narrow, peaked ocellarium either with long pile or with a single pair of distinct, generally slender bristles.

Thorax: The thorax is comparatively short, somewhat more humped than in *Atomosia;* the pile dense, subappressed and setate and undifferentiated on the dorsum. The lateral bristles are generally weak and consist of 1 notopleural and 1 supraalar, 1 postalar, and no scutellar bristles; the scutellar rim and disc have short pile. Mesonotum and scutellum punctured. Propleuron and almost the whole of the mesopleuron with abundant pile. Posterodorsal corner of the mesopleuron with only a bristly hair, the upper sternopleuron with few hairs. The anterior mesopleuron bulges outward and is prominent. Metapleuron unusually convex, with a wide band of numerous, long, distally curved, bristly hairs. Metanotal callosity with numerous, quite stout bristles. Metasternum pilose throughout. Postmetacoxal area with a complete chitinous arch. Prosternum not dissociated.

Legs: The legs are stout, especially on the first femur; all the femora with a moderately abundant, ventromedial and ventral fringe of pile and on the hind femur more poorly developed than *Atomosia.* Hind tibial fringe well developed. Hind femur with 3 or 4 long, basally stout, ventral bristles near the base. Hind tibia sometimes with rather dense, long, flatly appressed pile and bristles absent or poorly developed, more often there are 4 slender dorsal, 1 or 2 stout lateral, 3 or 4 ventrolateral bristles, and 3 ventral. Hind basitarsus more or less swollen. Middle tibia with the anterodorsal row of 3 to 5 bristles long and emphasized and with 10 to 12 slender bristles or bristly hairs in 2 irregular rows and 2 to 4 very long, ventral bristles, the basal ones longest. Anterior tibia with 3 or 4 slender bristles anterodorsally, 6 to 8 posteriorly, 4 or 5 longer posteroventral and 3 quite long slender ventral bristles. Claws slender, sharp; the pulvilli and empodium well developed.

Wings: The wings are immaculate or tinged; the marginal cell closed with a long stalk. Fourth posterior cell closed and stalked, the stalk sometimes evanescent. Remaining posterior cells open. Stalk of anal cell long, the second submarginal cell comparatively narrow at the apex, the end veins of the discal and fourth posterior cells lie in the same plane, nearly or quite aligned or offset by less than half the length of the discal end vein. The second posterior cell may be narrowed or widely open. Alula no wider than costal cell; ambient vein ends with the second posterior cell.

Abdomen: The abdomen is short, robust, coarsely punctured, with the sides curved down; the sixth tergite forms a deep, emarginate cup concealing the minute genitalia which are rather similar to *Atomosia.* Pile coarse but subappressed, sometimes but not always setate, and generally a little longer and erect laterally. Only the first tergite bears lateral bristles and these are generally weak. Males and females with six visible tergites.

Distribution: Nearctic: *Cerotainia albipilosa* Curran (1930); *atrata* Jones (1907); *macrocera* Say (1823).

Neotropical: *Cerotainia argyropus* Schiner (1868); *argyropasta* Hermann (1912); *argyropyga* Hermann (1912); *aurata* Schiner (1868); *bella* Schiner (1867); *brasiliensis* Schiner (1867); *camposi* Curran (1934); *dasythrix* Hermann (1912); *debilis* Hermann (1912); *?dubia* Bigot (1878); *flavipes* Hermann (1912); *feminea* Curran (1930); *jaimacensis* Johnson (1919); *laticeps* Bromley (1929); *leonina* Hermann (1912); *marginata* Hermann (1912); *minima* Curran (1930); *?nigra* Bigot (1878); *nigripennis* Bellardi (1861); *ornatipes* James (1953); *propinqua* Schiner (1868); *rhopalocera* Lynch Arribálzaga (1882); *unicolor* Hermann (1912); *violaceithorax* Lynch Arribálzaga (1880); *willistoni* Curran (1930).

Country unknown. *Cerotainia xanthoptera* Wiedemann (1828).

Genus *Amathomyia* Hermann

Figure 2534

Amathomyia Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 34, 1912. Type of genus: *Amathomyia persiana* Becker, *in* Hermann, 1912, by original designation; description by Becker, 1913.

The following is Hermann's description in translation:

> Head strongly widened or spread out in its breadth, the transverse diameter more than twice as great as the vertical height. The broad, somewhat protruding, lower face is more or less uniformly extended or swollen from below towards the antennal base. The medially indented (*cingekerbten*) orbital borders diverge in the region of the front not nearly as much as in *Cerotainia*. The mystax consists on each side of a series of rougher bristles, and shorter hairs stand between it which mainly take in the mouth border. The face bears on each side a number of short, downwardly bent hairs. The front bears along the eye margin and in the middle over the antennal base a number of short hairs or short pile. Vertex of head bare. The relatively low ocellar tubercle is armed with 2 divergent bristles. The occiput possesses a few bristles only on the upper half; lateral occiput weakly developed (*Backenbart*). Proboscis short, palpi very small. Antennae elongate; first segment twice as long as the second, the latter compressed, ribbonlike; terminal segment without terminal style, and whose small toothlike spine is only seen in profile with great difficulty; this segment about one and one-half times as long as both basal segments together. The short pilose first segment bears on the under side a single, stout bristle, the second segment is short setate.
>
> Thorax: The moderately arched mesonotum and scutellum shining metallic, clearly punctured and with uniformly short, appressed, lighter pile; longer, upright pile is completely lacking. Pleuron with spotlike patches of pollen and short, appressed pile in the mesopleural region. Bristles: 1 presutural, 1 supraalar, 1 postalar, notopleural none. The metanotum bears laterally some short, needlelike bristles. The shining metallic colored, very grossly punctured abdomen is uniformly provided with short, appressed, light colored pile and one may observe from above, the posterior rim of the seventh segment; lateral pile only a little lengthened; the first segment has 2 or 3 discal bristles, the others each 1 discal bristle. Sternites bare.
>
> Legs relatively short and quite stout; each end tarsus conspicuously narrowed. The pile and bristles afford nothing that is characteristic. Only on the posterior side of the anterior tibia two bristles become conspicuous because of their length. Brushlike pile is poorly developed. The ciliary hair (*wimperbehaarung*) is limited to the anterior surface of the hind tibia. Claws long, pulvilli relatively small. The wings are very conspicuous by the presence of only four posterior cells; second and third posterior cells united with one another. Stalk of subcostal cell long. The first posterior cell is very clearly narrowed. The small crossvein stands over the border of the discal cell at the distal third. This new genus possesses special interest as it is the first Palaearctic representative of a group until now only found in America and which is related to the genus *Cerotainia*.

Distribution: Palaearctic: *Amathomyia persiana* Becker (1913.) From Baluchistan.

Genus *Cyphotomyia* Williston

Figures 267, 641, 1345, 1354, 2157

Cyphotomyia Williston, Psyche, vol. 5, p. 257, 1889. Type of Genus: *Cyphotomyia lynchii* Williston, 1889, by original designation.

Small, subcylindrical flies with the abdomen minutely short pilose and strongly punctulate. Like *Cerotainia* Schiner the first and third antennal segments are each remarkably long and slender and the upwardly divergent face and wide deeply excavated vertex are similar. They differ by the greatly reduced pile and bristles of the face, vertex and occiput in *Cyphotomyia;* the occiput has on each side 3 or 4 stout, spikelike bristles. Length 7 mm.

Head, lateral aspect: The head is of moderate length, strongly convex in front and also behind. The face is short but the lower part is gently continuous and receding to the base of the proboscis. The lower front and upper face are extended; as a result the face is concave across the middle. The lower eye margin extends slightly below the bottom of the face. The occiput is strongly swollen toward the middle of the profile and bears on the swollen part a deeply submarginal row of 4 short but extremely stout, black spines. The proboscis is quite short, subtruncate, and rather strongly swollen at base; it bears a few, stiff hairs apically and a few longer hairs beneath the base. The palpus is minute, bearing 1 or 2 long hairs. The antenna is on a low protuberance above the middle of the head. It is unusually long and slender; the first segment is nearly as long as the head and almost or quite as long as the third segment; the second segment is short and beadlike and bears in the middle a long, black bristle and a second bristle below near the apex. The third segment is quite long and slender with scarcely a trace of dorsal incision and is without microsegments. The first segment bears a weak, moderately long, bristly hair in the middle of the lower margin.

Head, anterior aspect: The face is scarcely a fifth the head width and distinctly convergent below. Lower face on either side with 3 rather short, fine, black, bristly hairs and this part of face very slightly convex. The vertex is extraordinarily excavated; it is deep and wide from anterior aspect and from a dorsal aspect flared backward and widened still further posteriorly, so that the eye is wide anteriorly, very short posteriorly. The ocellar protuberance is small but high with vertical sides but is placed on a strongly swollen medial ridge; it bears a pair of short, black, erect bristles.

Thorax: The mesonotum is rather high especially anteriorly and abrupt though anterodorsally rounded. It bears microscopic, erect, short, stout setae borne in shallow depressions, giving a roughened appearance, as in the stratiomyid genus *Eupachygaster;* some of these setae are so short as to be almost conical. Also the medial portion of the anterior mesonotum is more swollen. Supraalar region with 1 quite stout, short, black bristle, notopleuron with none. Postalar and scutellum with none. The scutellar disc and prescutellar area, the acrostical and dorsocentral areas each bear minute pile which becomes flat appressed in front of the scutellum. Scutellum flat; metanotal slopes with 10 to 12 rather short, very stout, black, bristly spines. Mesopleuron with a large oval area of appressed, short, golden pile; no bristles. Posterior border of mesopleuron and sternopleuron densely, greyish yellow pubescent. Hypopleuron with a few long hairs. Metapleuron strongly bulging with a fan of 12 long, slender, yellow hairs, bent downward distally. Lateral metasternum with pile; postmetacoxal area short and fully chitinized.

Legs: The hind femur is distinctly thickened distally. It bears a ventral row of abundant, fine, long, erect, reddish pile; toward the base there are 3 quite long, erect, medial hairs; there are 4 similar hairs near the middle ventrolaterally, with shorter elements towards the apex and base; this femur bears 1 stout, short, yellow bristle laterally at the apical fifth, none dorsally. Hind tibia ventrally with similar, erect, reddish pile and with 2 long, curved, slender, pale, ventral bristles situated at the middle and the outer fourth. There are 2 bristles almost as long, stouter and lateral with an additional shorter bristle near the base; no dorsal bristles present. Middle femur without special bristles. Middle tibia with long, erect, ventral pile and its dorsal surface with 2 long, moderately stout, pale, oblique bristles at the basal and distal thirds; the anterior surface has 1 moderately long, basal bristle; it also has 2 exceptionally long, ventral bristles. Anterior apex of first two middle tarsi each with a very long, yellow bristle. Anterior femur with a weak, short, dorsal bristle at the apical fourth, 3 long, yellow hairs ventrally on the basal half, and a few shorter, erect hairs. Anterior tibia with several, quite long, slender, anteroventral and posteroventral, bristly hairs, set closely and only slightly divergent; there are 3 anterior and 3 posterior bristly hairs with others of a half to a third their length scattered between. Apex with 2 long, anterior bristles. Anterior tarsus with only moderately long bristles. Claws short and sharp; pulvilli two-thirds as long as claw; the empodium basally thickened.

Wings: The wings are relatively wide. The marginal cell is closed with an extremely long stalk, the fourth posterior cell closed some distance from the margin, the stalk absent; veins ending discal and fourth posterior cell nearly aligned. Anal cell closed with an exceptionally long stalk. The ambient vein ends at the second posterior cell. The second submarginal and first and second posterior cells are elongate, slender, with parallel sides. Alula quite narrow.

Abdomen: The abdomen is subcylindrical and strongly punctulate, with a slightly purplish reflection. The first tergite is nearly as long as the second; the second tergite is slightly wider and almost if not quite as wide as thorax. The dorsal pile is microscopically short, set in punctures. Sides of the first tergite with 4 quite short, stout, blackish bristles; remaining tergites without bristles and lateral pile extremely short but the posterolateral margin near the sides has a narrow, short band of silvery pubescence on the second to fifth segments. Only six tergites are visible, the last is as long as the fifth, but very strongly cupped, especially apically so that the small but inconspicuous terminalia are enclosed dorsally and laterally and visible only from below. The seventh tergite is a short shield appressed against the internal surface of the sixth and not extending beyond it.

Distribution: Neotropical: *Cyphotomyia lynchii* Williston (1889).

Genus *Opocapsis* Hull

FIGURES 258, 662, 1350, 1359, 1570

Opocapsis Hull, Proc. Ent. Soc. Washington, vol. 60, p. 252, 1958. Type of genus: *Laphria dioctroides* Walker, 1860, by original designation.

Quite small, slender flies, immediately recognized by the complete absence of one of the posterior cells, which may be assumed to be the third posterior cell, and of which there is no trace. The face is quite narrowed, with 2 fine bristles above, 2 somewhat longer ones below. The proboscis is minute, cylindrical apically but from the dorsal aspect rather strongly swollen; it barely protrudes beyond the face and is not constricted in the middle. The hind femur is rather strongly dilated from the base, widest across the apical third. It is related to *Clariola* Kertész and separated by the reduced number of posterior cells. Length 5 or 6 mm.

Head, lateral aspect: The face is quite plane with the eye, except for a minute elevation on the lower sixth of the head. The upper occiput has a single, short, stout, black bristle on each side. The proboscis is small and extremely short, scarcely protruding beyond the face; unconstricted, from the dorsal aspect it is swollen. The palpus is extremely minute and slender and wedged in between the inner margin of the eye and the sides of the proboscis. There appears to be two segments, the basal one exceptionally minute and short, and with 3 or 4 fine, minute hairs on its free ventral and lateral surfaces. Second segment long and slender without evident pile though there seems to be some minute pubescense. The antenna is attached at the upper fifth of the head, the first segment slender and elongate, more narrow than the second and twice as long; it bears a pair of long slender bristles in the middle ventrally. Third segment longer than the first two segments combined and tapered from the base to a comparatively fine point at the apex; in the middle of the dorsal margin it has a deep incision with basal bristle.

Head, anterior aspect: The face below the antenna is a seventh the head width and barely divergent below at the epistoma. The face bears coarse, erect pubescence and a vertical row of 5 or 6 appressed, somewhat matted, scaliform, shiny hairs. The lateral margin of the remainder of the face has a linear row of shining pubescence and a patch of pubescence beneath the antenna. Middle of the face also pale pubescent but appearing dark, except in an oblique light. Epistoma quite small, short and not quite horizontal. The front is short, narrow, micropubescent but without bristles; such as is present is very minute; there is a distinct, deep fossa on each side. The ocellar protuberance is cylindrical, with 2 rather long, slender, browning black bristles, divergent and curved backward.

Thorax: The mesonotum is polished, shining, black, apparently without acrostical elements and with a single row of distinct, fine, scattered, scanty, suberect, dorsocentral hairs. Bristles are present as follows: 1 notopleural, 1 supraalar quite long and rather slender, 1 postalar shorter and still more slender, and 1 pair of quite long, rather stout, closely adjacent, brownish black scutellar bristles directed obliquely upward. Pleural bristles are confined to the metapleuron, where there are 4 quite long, slender, fanlike, yellowish bristles turned downward apically and 3 or 4 other shorter, fine hairs. Postmesopleuron with 1 or 2 hairs; there are no bristles, but 1 or 2 scars present suggest that there may have been weak bristles. Hypopleuron with 2 or 3 long, fine hairs; metanotal slope with 2 or 3 fine, slender, bristly hairs, pale in color. Sides of metasternum pilose with numerous, fine hairs; postmetacoxal area heavily chitinized and longer than wide.

Legs: The hind femur is slightly lengthened and rather distinctly thickened; it bears short, scanty, appressed pile; the ventromedial margin has a long, dense fringe of fine, erect yellowish, unmodified hairs from near the base to near apex and it bears rather long, slender bristles consisting of 3 laterally at the middle and beyond, 1 dorsally at the apex and 1 medially near the apex, and 3 very slender and long anteroventral, besides 2 or 3 quite long, slender ventromedial hairs. Hind tibia with matching ventral fringe becoming an almost scalelike mat at the apical eighth and rather more prominent, quite long bristles. There are 2 lateral and 4 dorsal, the last 2 quite long. Middle femur slightly thickened on the outer third and rather slender on the whole, with a weak, long, anterodorsal bristle on the outer third, 3 ventrally, the outer two are quite long; middle tibia quite slender with extremely long, oblique bristles, 4 ventral, 2 lateral, and a few other long hairs and short, subappressed, ventral pile. The anterior bristles of the middle basitarsus as long as two tarsal segments. Anterior femur with 2 or 3 quite long, slender, bristly hairs ventrally; this tibia has 4 moderately long, dorsal and 3 still longer oblique anterior and 3 posterior ventral bristles. First segment of the tarsi with extraordinarily long, anteroventral, anterodorsal apical bristles and posterobasal bristle; other bristles shorter. Claws rather short, sharp; pulvilli nearly as long as claws; empodium as long as pulvillus, basally stout.

Wings: There are only 4 posterior cells present; one completely missing, which appears to be the third posterior cell; all other posterior cells open maximally. Anal cell closed with a short stalk; marginal cell closed with a short stalk; the discal cell ends with 1 straight, transverse vein, second basal cell closed with 3 veins, the middle vein short. Ambient vein ends in the middle of the anal cell; alula quite narrow.

Abdomen: The abdomen is slender and subcylindrical though slightly flattened on the first two or three tergites; it is strongly punctulate and is very slightly but gradually widened; the base is nearly as wide as the mesonotum. Sides of first tergite with 4 rather stout, white bristles in a vertical row; middle of the sides of the second to fourth tergites each with a rather long, distinct, slender, white bristle. There are 7 tergites present in the male. Abdomen thin, the sides moderately rolled. Male terminalia small, inconspicuous, completely hidden by the incompletely cupped over abdomen.

Distribution: Australian: *Opocapsis dioctroides* Walker (1860).

Genus *Atomosiella* Wilcox

FIGURES 220, 671, 1334, 1343

Atomosiella Wilcox, Pan-Pacific Ent., vol. 3, p. 40, 1937. Type of genus: *Atomosia antennata* Banks, 1920, by original designation.

Small, short, scantily pilose flies with strongly punctulate abdomen and the general appearance of *Atomosia* Macquart. Like *Atomosia* they carry a minute spine near the middle of the third antennal segment; it is somewhat more inconspicuous and difficult to discover as it is subdorsal and lateral in position. These flies are immediately recognized by the presence of only 4 posterior cells; the third is wanting. Probably related to *Cerotainia* Schiner. Length 7 or 8 mm.

Head, lateral aspect: The face is scarcely visible in profile, except for a small, low triangle below which is due to the recession of the eye. The eye is strongly convex anteriorly, gently and evenly convex posteriorly. Occiput narrow, but evenly developed except at the immediate vertex, where it is wanting. The occipital pile is very scanty and consists of a few, fine, bristly hairs below and some fine pile at the extreme base and 8 pairs of bristles on the upper half; the bristles behind the vertex are more prominent. The proboscis is quite small, short, very obtuse apically and somewhat constricted below in the middle, giving the base a swollen appearance. It is a little constricted laterally, has abundant, short, fine pile at the apex, and some long hairs ventrally below; the proboscis is thrust chiefly forward and is not longer than the face. Palpus minute, composed of 1 segment, short, obtuse, attached to a curved, concave ledge next to base of proboscis; it has 6 or 7 fine, long hairs. Antenna attached at the upper third, the first segment is more than twice as long as the second and the second segment is beadlike. The third segment is slender and nearly twice as long as the combined length of the first two; it is rather flattened with blunt apex and carries beyond the middle subdorsally and laterally a small yellowish spine located in an inconspicuous pit. First segment with a single, rather long, well developed, erect, pale, ventral bristle and 3 or 4 additional, short setae above and below. Second segment with a circlet of short bristles, except medially.

Head, anterior aspect: The face below antenna is a fourth the head width and is slightly reduced in width below. Subepistomal area small, oblique and bare. The face is micropubescent and bears 10 to 12 short, curled hairs on either side. Along the epistomal margin is a widely spaced row of 4 pairs of very slender, long, bristly hairs, and above these a single pair of widely spaced hairs. The front is quite short, pubescent, with 3 or 4 fine hairs laterally and no bristles. The vertex is deeply excavated and considerably wider than the face and with slanting sides. Ocellarium prominent and quite high, the steep sides bearing a single pair of strong, divergent bristles. Anterior central eye facets very strongly enlarged.

Thorax: The mesonotum is punctate, without pollen or pubescence; the pleuron bears a middle and an anterior stripe of micropubescence meeting above; metapleuron and the hypopleuron also pubescent. The pile of the mesonotum is abundant, short, flat appressed and rather curled and setate but without differentiation. The lateral margin has 1 notopleural, 1 supraalar, 1 postalar, but no scutellar bristles. Scutellum convex, punctate, with pile similar to the mesonotum. Mesopleuron with fine pile dorsally and ventrally and a single, slender bristle. Metapleuron with a band of long, straight or slightly curved, bristly hairs. Hypopleuron with some pile. Pteropleuron polished and apilose. The lateral metanotal slopes bear 1 stout, stiff bristle and a few, short hairs. Lateral metasternum with pile; ventral metasternum with a few long hairs; postmetacoxal area chitinized but rather short; tegula pubescent only. Prosternum not dissociated.

Legs: The hind femur is a little thickened especially through the middle; it bears the following complement of bristles: 1 long, stout, pale, erect, lateral bristle at the outer third, but no apical bristles. This tibia has 3 rather long, lateral bristles. The hind femur ventrally bears only a few, quite scattered, long, erect hairs but has 3 very long, erect, slender, ventromedial bristles at the middle and base; the hind tibia ventrally has a rather copius, erect fringe of long pile and no setae. Middle tibia with 3 long, basally stout, anterior and posterior bristles. Anterior tibia with similar bristles but with the anterior element quite short. The bristles of the anterior basitarsi and following segment are long on both sides. Tarsi end in slender, sharp claws, well developed pulvilli, and a short empodium.

Wings: The wings are unusually broad. The marginal cell is closed and stalked; the anterior branch of the third vein ends just above wing apex; the posterior branch far behind. The first posterior cell is narrowly open, the fourth is closed and stalked. The third posterior cell is united with the second posterior cell so that only 4 posterior cells are present. The vein ending the fourth posterior cell and the single vein ending the discal cell are in almost a straight line; anal cell closed and stalked, evanescent marginally. Alula of medium width; the ambient vein ends with the first posterior cell.

Abdomen: The abdomen is comparatively broad and robust, as wide as the thorax and strongly, coarsely punctulate. Pile short, fine and scanty. Sides of the first tergite with 4 stout, pale bristles; the middle of the sublateral margin of each remaining tergite with 1 quite stout bristle. There are six tergites present in the male and six in the female with the seventh concealed as a short flap beneath the sixth. Male terminalia rotate and of the general form of *Atomosia*. The terminalia are small, subglobular like in *Atomosia* and recessed and hidden within the cavity formed by the obtuse, convex, ultimate tergites. Beyond the epandrium is a long, polished, arched proctiger, extended beneath the encircling attenuate gonopod arms, which are larger and dominate the structure; aedeagus is a flat tube divided apically into 3 quite short branches. Female terminalia quite short and concealed or in profile extending only a short way beyond the edge of the tergite; the eighth sternite is produced a short distance without lobes or processes.

Distribution: Nearctic: *Atomosiella antennata* Banks (1920).

Genus *Rhathimomyia* Lynch Arribálzaga

FIGURES 230, 652, 1316, 1325

Rhathimomyia Lynch Arribálzaga, Anal. Soc. Cient. Argentina, vol. 14, p. 135, 1882. Type of genus: *Rhathimomyia nitidula* Lynch Arribálzaga, 1882, by original designation.

Rhathithomyia Williston, Trans. American Ent. Soc., vol. 18, p. 78, 1891, *lapsus*.

Small flies, black with polished, shining, micropunctate, rather broadly oval abdomen, which tends to be a little flattened along the middle. Scutellum flattened on the disc and without spines or bristles. The hind femur is stout, a little swollen distally, and bears a partly doubled row of weak spines or spinous bristles which arise from weak tubercles. Length 9 mm.

Head, lateral aspect: The face is quite short and nearly plane with a very slight depression over the middle face; therefore, there is almost no gibbous portion ventrally. Subepistoma small and nearly horizontal. Occiput moderately well developed except the part back from the eye margin. At the lower corners of the occiput are only a few bristly hairs or quite weak bristles. Below, the middle bristles become rather strong; they are situated in a single row and dorsally are almost spikelike; there are 14 on each side. Proboscis small, short, subcylindrical, slightly compressed and linearly striate laterally, with the apex truncate and a little expanded. It is directed straight forward. Narrowly about the apex of the proboscis is a circlet of fine hairs; base below with a few hairs and in lateral view the base is strongly depressed and without keel, in contrast to *Atomosia* Macquart. Palpus extraordinarily minute, slender and cylindrical, with a few fine subapical hairs. The antenna is attached at the upper third of the head, the first two segments are equal in length and each has around the middle a circlet of setae; these wanting on the medial surface. One of the ventral elements on the first segment forms a moderately long bristle. Third segment straight, no wider than the second and not over 1½ times the combined length of the first two. It has attached at the apex a short, somewhat spoonlike microsegment bearing at the base a minute, exposed, dorsal spine arising from the end of the third segment. The microsegment bears a slightly longer micropubescence.

Head, anterior aspect: The head is of moderate width, about one and three-fifths times as wide as high. Face beneath the antenna about one-fourth the head width and slightly narrowed below. It bears on each side 2 or 3 long, slender bristles confined to the upper half of the face and on the lower face above the epistoma on each side a vertical row of 2 slightly longer, slender bristles and 2 bristles almost as long bordering the upper part of the lateral epistomal margin. There are also a few fine hairs ventrally. The face cover consists of scanty, flattened pubescence which is quite flat appressed. Front distinctly wider than the upper face, with lateral, shallow grooves continued behind the ocelli. The ocular slope has 5 or 6 medium long bristles, one of which is at the vertex; the medial slope has pollen only. Ocellarium rather large, with nearly vertical sides and bearing 1 pair of long, moderately stout bristles and behind the ocelli sometimes a pair of minute bristles.

Thorax: The mesonotum is comparatively small and short, shallowly convex and sparsely covered with minute, curled, appressed pile on a polished, shining background. The pile arises from punctures so small as to be inconspicuous; also the pile is quite undifferentiated. The bristles are quite small and consist of 1 on the notopleuron, 1 supraalar and 1 postalar, and none on the scutellum. Scutellar disc flattened, rugose, with minute, curled setae and the rim slightly emarginate. Metanotal callosity with a patch of short bristles. Propleuron quite short, the pronotum with fine pile. Mesonotum bare and polished and not punctate; striate, with the upper border pollinose, and a minute, posterodorsal, bristly hair. Metapleuron with a vertical row of 4 long, slender, black bristles; prosternum fused, postmetacoxal area with a narrow band of chitin behind the posterior coxa.

Legs: The hind femur is rather stout and a little swollen, especially beyond the middle. The legs are polished and bare, with almost no pile and a few setae. The bristles on the femora are few, for the most part minute, and more slender and longer on the tibia. Hind femur with a partly doubled, dorsolateral row of 10 or 11 rather minute bristles, longer distally. On the ventral aspect are about 8 sharp spines of no great length; these might be described as either spines or spinous bristles. The lateral surface of hind femur with a number of short, stout, scattered, spinous setae. Hind tibia with 7 dorsolateral setae, 3 dorsomedial setae and other smaller elements, and dorsolaterally beyond the middle and at the apex also 1 conspicuous bristle of no great length; there is a smaller bristle ventrolaterally on the outer fourth. Ventral surface of this tibia with rather dense, fine, erect, pale pile which is absent on the basal third. The femur also has similar ventromedial pile but less dense. Hind basitarsus much more slender than the comparatively stout tibia. It is nearly as long as the three short succeeding segments. Middle femur with 2 or 3 weak bristles on each side dorsally near the apex, 1 bristly hair ventrally near the base and some other stiff, erect, short, ventral hairs. This tibia bears 2 long, slender, anterior bristles at the middle and beyond, a shorter bristle near the apex and several short bristles near the base. There are also 2 quite slender, long, ventral bristles but posterior elements are lacking. Anterior femur rather similar to the middle pair, the anterior tibia with several long, quite slender posterodorsal and posteroventral bristles, 2 above and 2 below, and 7 short bristles or setae anteriorly. Tarsal bristles long; claws slender, sharp, bent at apex; pulvilli long and slender; empodium slender, swollen at the base.

Wings: The wings are broad, tinged with pale brown, entirely villose. Marginal cell closed with a short stalk. Base of second submarginal cell quite wide, expanded entirely anteriorly. First posterior cell fully open, fourth posterior cell closed with a long stalk, and the anal cell closed and stalked. Posterior crossvein long, the anterior crossvein enters the discal cell beyond the middle. The medial crossvein is almost eliminated so that the vein closing the fourth posterior cell almost meets the upper section of the anterior intercalary vein but is not aligned with it; this varies to some extent. Alula quite narrow; ambient vein complete but weak basally.

Abdomen: The abdomen is broadly oval with a somewhat flattened appearance especially down the middle and more convex laterally. The first four segments are nearly equal in width in females; the first segment is rounded off anteriorly towards the sides and the last two segments more or less triangular taken together. The abdomen is fully as wide as the thorax and bears moderately abundant, minute, quite flat appressed setae or setate pile. Only the first segment anteriorly bears a few lateral, not appressed hairs. This segment also has at the sides 2 or 3 moderately stout, black bristles and a few, erect, yellow setae. The first segment is as long or almost as long as the second and the third to fifth segments are of equal length; the sixth is almost as long as the fifth and in females the seventh segment is shortly exposed dorsally and pale yellow in contrast to the shining black abdomen. Eighth segment fully concealed. The whole abdomen is densely covered with minute punctures.

Distribution: Neotropical: *Rhathimomyia nitidula* Lynch Arribálzaga (1882).

I have had for study 2 females loaned by the Hope Department Entomology, Zoological Museum, Oxford University, which I believe are correctly identified as this genus, and agree with Arribálzaga's description as I interpret it. These 2 specimens bear the labels: "Buenos Aires, *Atomosia* ? sp. no. 204, of Bigot collection." The other bears a label in handwriting: "Arribálzaga, *Atomositia*, g. et sp. nov. (Chacab. IX, 1880)." It was 2 years later that Lynch Arribálzaga erected the genus *Rhathimomyia*.

Genus *Lamprozona* Loew

FIGURES 244, 670, 1308, 1317, 2172

Lamprozona Loew, Bemerkungen über die Familie Asiliden, 1851, p. 18, 1851. Type of genus: *Lamprozona auricincta* Loew, 1851, by monotypy.

Quite small, robust, compact flies that resemble *Atomosia* Macquart but are without a dorsal spine-bearing incision before the apex of the third antennal segment. They are blackish flies and the end vein of the discal cell and the fourth posterior cell are quite in alignment. The whole face is rather densely covered with fine bristles and the bristles of the front and vertex are numerous and prominent. Length 7 mm.

Head, lateral aspect: The face is almost wholly plane with the eye, in profile there is a thin line visible on the dorsal two-thirds and a short, rounded elevation below due to the recession of the eye, leaving the face slightly concave above. The eye is of moderate length, considerably narrowed below; most of it is due to a prominent, gradual, posterior, anteroventral recession of the eye which begins at the upper third of the head, leaving most of the eye behind plane and strongly convex on the upper third; the occiput obliterated on the upper third, comparatively short at the lowest portion of the eye but exceptionally thick and extensive over the greater middle part. The proboscis is extremely short, quite bluntly truncate apically and not extending beyond the face. The apical pile is directed outwardly as a circular fringe; middle of proboscis slightly constricted, the whole cylindrical and not swollen; the dorsal ridge absent or nearly so; the base ventrally has a transverse row of 3 pairs of long, slender, pale bristly hairs; the whole structure is directed horizontally forward. Palpus minute. The antenna is attached at the upper fifth of the head, of moderate length; the first segment is 1½ times longer than the second, the third segment not quite twice as long as the first two combined; at the immediate base it is less wide than the second segment; for the greater part of its length it is of nearly the same width and with nearly parallel sides; it is slightly tapered distally and ends in a quite sharp point with minute apical spine; it is cut away or excavated dorsally near the apex; and at the base of the dorsal excavation there is a distinct, larger, bristly spine. The first and second segments are unusually densely beset with stiff, comparatively long, black bristles on all sides except medially; there are at least 40 on the first and 5 or 6 ventrally and as many dorsally on the second.

Head, anterior aspect: The head is not very wide. The face below antenna less than a fourth the head width and with parallel sides. The subepistomal area is comparatively small, oblique, concave and bare. Face micropubescent on the lower half and narrowly along the eye margin, with dark pollen between. Face apilose but densely beset with bristles in two groups on the very slightly raised upper half of the face. There are about 14 bristles on each side set in groups of 2 or 3. On the lower, slightly convex, half of the face are 40 or more bristles in irregular rows. Front short with exceptionally numerous and quite long, rather stiff bristles on each lateral fourth. The front is divided on each side by a deep crease continued on each side of the ocellarium. Vertex deeply excavated with rather steeply slanted sides; the ocellarium large, high, and with nearly vertical sides, and bearing 3 pairs of long, slender, black bristles closely adjacent between the ocelli and a more slender pair behind the ocelli at the peak of the eminence. Anterior eye facets strongly enlarged.

Thorax: The thorax is shining, with very little pollen or pubescence; this restricted to the lower half of the thorax although the mesopleuron is in some lights very thinly pollinose and all of the pubescence is exceptionally minute. Pile of mesonotum rather dense and unusually long, but bristly and without differentiated acrostical or dorsocentral elements, although the pile becomes a little longer generally over the posterior half of the mesonotum. Humerus densely long, bristly pilose. The following complement of quite long, bristly hairs is present on the mesonotum: 1 notopleural, a close-set, backwardly curved row of 3 supraalar set quite low along the margin and almost immediately above the wing, this row continued posteriorly with more slender elements, 1 long postalar, and 4 pairs of exceptionally long, delicate, scutellar bristles. Scutellum a little thickened, slightly convex, with a quite distinct impressed rim; the basal crease is deep and the disc with some short, bristly pile.

Propleuron including the pronotum, with rather scanty, bristly pile. Posterolateral pronotum densely long, bristly pilose; bristles absent. Upper half of the mesopleuron with numerous, long, bristly hairs. Posterior margin of the mesopleuron just below the wing with a single, long, slender bristle and 2 or 3 slender hairs. Anterior sternopleuron with a tuft of fine pile; pteropleuron apilose; the posthypopleuron has, in addition to pubescence, 4 or 5 long, slender hairs in a vertical row. Metapleuron with a narrow, vertical band of long, slender bristles and bristly hairs. Lateral slopes of the metanotum with a large patch of short, rather stout bristles; posterior half of the lateral metasternum with numerous, long, stiff hairs on all except the basal third. Postmetacoxal area with a chitinized arch, nearly as long as the coxa, that bears on each side a tuft of 8 or 10 fine, stiff hairs. Tegula pubescent only.

Legs: The hind femur is very little longer than the middle pair, moderately swollen, narrowed from the middle toward the base, though only slightly. It is comparatively thick throughout; hind tibia also robust, except quite close to the base, where it is a little narrowed. The hind tibia is four-fifths as long as the femur. Dorsal surface of the hind femur with short, bristly, appressed setae a little more abundant medially. Ventral surface on the medial half with a dense brush of long, fine, pale, erect pile and the base only with 2 or 3 fine, long hairs of twice the length of this brush. Hind tibia with a similar brush of pile and 8 longer, slender, bristly hairs with no setae at the apex. In these flies the bristles are all exceptionally weak and for the most part little more than bristly hairs. On the middle tibia only do they stand out conspicuously as an anterodorsal and anteroventral fringe of exceptionally long, basally stout, strongly attenuate fringe. The following complement of bristles is present: On the hind femur at the outer fourth are 3 bristly hairs dorsomedially and 3 dorsolaterally in a longitudinal row; also ventrolaterally 5 or 6 slender, bristly hairs and 1 quite long, bristly hair in the middle, another ventromedially before the middle. Hind tibia with 4 or 5 posterodorsal, bristly hairs; a like number dorsolaterally, of which one at the outer third is disdistinctly longer and stouter.

Middle femur quite slender with a bristle only anteriorly at the outer fourth. Ventral surface with a rather regular, double row of long, yellow, bristly hairs, longer toward the base. Middle tibia with 4 quite long, oblique, basally stout, anterodorsal, black bristles and 7 or 8 shorter, posterodorsal, bristly hairs; also 9 or 10 similar, posteroventral bristly hairs and with 4 exceptionally long, basally thickened, black, oblique, anteroventral bristles. Anterior femur similar to the middle pair but without bristles, with comparatively long, black, bristly pile posteriorly. There is similar pile dorsally, posterodorsally, and laterally on the anterior tibia. This tibia also has 3 or 4 longer, posteroventral, slender bristles or bristly hairs. The bristles of the tarsal segments comparatively long on the first two segments of the anterior tarsus; claws small, sharp; pulvilli long; the empodium long and a little flattened basally.

Wings: The wings are narrow at the base, due to the long, narrow axillary lobe. Marginal cell closed with a quite short stalk but comparatively broad apically. First, second, and third posterior cells widely open; fourth closed with a moderately long stalk. The anal cell closed with a long stalk; second basal cell ends in two veins, the anterior crossvein enters the discal cell at the distal third; the end vein of the discal cell and the fourth posterior cell are quite in alignment although they do not form quite a straight line. Alula less wide than the costal cell; the ambient vein complete.

Abdomen: The abdomen is short and robust with a tendency to be rather thinned or flattened. In the female the tergites laterally are strongly offset from one another at their basal corners. In the male they appear to be quite smooth but this appears possibly due to the fact that these edges are rather strongly curled inward. Pile of abdomen dense, bristly setate and subappressed but with longer, bristly pile on the sides of the first three tergites. Sides of the first tergite near the middle with 2 or 3 slender bristles. Pile and bristles of male black; of female, except the anterior corners, brassy yellow on the sides of the first three tergites and dorsally on the first five tergites, where it is flat appressed and rather thick and matted. Basal margins of the tergites strongly sloping, leaving a deep, shallow crease between each segment. Males with seven tergites, the seventh from a fourth to a third as long as the sixth; females with seven tergites, the seventh of the same length as the male in proportion to the sixth. The terminal segments are not cupped so that the short terminalia are exposed in both sexes from a lateral aspect.

Distribution: Neotropical: *Lamprozona atrata* Philippi (1865); *auricincta* Loew (1851); *castaneipes* Bigot (1878); *chilensis* Brèthes [=*cyanescens* Bigot (1878) not Rondani].

Genus *Löwinella* Hermann

FIGURES 219, 656, 1351, 1360, 2173

Löwinella Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 104, 1912. Type of genus: *Atomosia virescens* Loew, 1871, by original designation.

Quite small, robust flies; the abdomen and mesonotum punctate and separated from the other genera of the Atomosini by the stout, comparatively large microsegment with apical, bristly spine which is attached to the third antennal segment. Length 6.5 to 10 mm.

Head, lateral aspect: The face is very slightly protuberant on the upper third but moderately protuberant and gently convex on the lower third, leaving the intervening area barely concave. The eye is comparatively long, quite convex anteriorly, plane across the middle posteriorly for at least half of its total height, but rather strongly recessed below and only slightly above. The occiput is quite short but developed throughout the height of the head. The pile of the occiput is only moderately abundant and long and fine on the ventral fourth of the head, but is short and scanty through the middle and absent dorsally. Beginning in the middle are 7 or 8 pairs of rather short, but exceptionally stout, spinous bristles; 2 or 3 of these bristles are located on each side behind the vertex. Proboscis unusually short, not quite as long as the face, robust and stout, cylindrical and bluntly rounded. The apex bears numerous, short, stiff hairs above and below, the base ventrally has only 2 or 3 fine, long hairs. The proboscis is directed horizontally forward. The antenna is attached at the upper fourth of the head and is elongate and slender; the first segment is slightly longer than the second. The third segment is not quite 1½ times as long as the first two segments combined, of uniform width and almost cylindrical; it bears a comparatively long, robust microsegment which dorsally near its base is notched or excavated and carries a stout, short spine. First antennal segment with 1 or 2 minute setae dorsally and a single, ventral, rather stout, long bristle; second segment with a similar, only slightly shorter ventral bristle, 3 short, fine setae, and several other setae dorsally.

Head, anterior aspect: The face below the antenna is a fourth the head width and even more narrowed across the middle and slightly divergent below. Face coarsely pubescent, with 1 or 2 pairs of long, slender, downwardly curved bristles on the upper portion of the face shortly beneath the antenna. On either side below and above the longer ventral bristles are 3 or 4 additional pairs of somewhat shorter, more slender bristles or bristly hairs also curled downward. The low, ventral, convex protuberance of the face bears a rather close-set, rectangular patch of numerous, long, comparatively slender bristles; these also extend down along the sides of the subepistoma. Front short and pollinose, with a deep, longitudinal fissure or groove running from the antenna to behind the ocellarium. The width of the front is the same as the lower face but is doubled at the level of the posterior eye corners. The lateral eye margins have 3 distinct, moderately long, comparatively stout bristles; the vertex is moderately excavated, the ocellarium large, with steeply sloping sides, and bearing between the ocelli a pair of long, stout bristles. Anterior eye facets moderately enlarged.

Thorax: The mesonotum is shining and not pubescent, except narrowly behind the humerus. The pleuron is densely appressed pubescent, except on the posterior mesopleuron, where a large triangular area is bare. Pile of mesonotum short, flat appressed or curled and setate, the surface of the mesonotum and upper mesopleuron is coarsely punctate; the following complement of bristles is present laterally: a single, long, rather stout notopleural, 1 supraalar, 1 postalar, and 2 pairs of scutellar bristles. Scutellum rather thick and convex with impressed margin, base with a deep crease; the surface is covered with abundant, short, curled, appressed pile and with coarse punctures. Propleuron with short, stiff pile ventrally and on the pronotum; pile absent on the middle posterior portion. Anterior sternopleuron with some long, stiff, bristly hairs. Upper posterior corner bears a single, long, conspicuous, slender bristle. Pteropleuron, hypopleuron apilose; metapleuron with a vertical row of 5 or 6 long, slender bristles; lateral slopes of the metanotum with 3 or more, exceptionally stout, spinous bristles. Lateral slopes of the metasternum with pile, ventral metasternum composed of 1 narrow, widely isolated, thin strip of chitin. The large anterior membranous portion has 3 or 4 fine, long hairs; the postmetacoxal area forms a short, but complete, arched band of chitin. Squama extremely short and apparently without fringe.

Legs: All the femora are stout and more or less swollen; the hind femur is rather short and strongly swollen distally and narrowly spindly at the base; the hind tibia is moderately stout and distinctly arcuate. The pile of the femur dorsally consists of moderately abundant, appressed, setate pile; the ventral surface of the hind femur has a rather dense fringe of extremely fine, erect pile which is chiefly confined to the medial half and with near the base 1 or 2 much longer, slender, bristly hairs, one of which is nearly half as long as the femur. Ventral surface of the hind tibia with a somewhat more abundant fringe of fine, erect pile and no brush of setae; its medial surface has a few, appressed setae only at the extreme apex. The hind femur has at the apex 1 slender, dorsomedial and similar dorsoapical bristles and 1 lateral beyond the middle on the most swollen part; hind tibia with long but exceptionally slender bristles consisting of 2 dorsomedial on the outer half, 2 dorsolateral at the basal and distal third, and 2 or 3 long, slender, ventral, bristly hairs. Middle femur with comparable apical dorsomedial and dorsolateral bristles; this tibia with longer, stouter bristles consisting of 3 anterodorsal and 2 or 3 posterodorsal and 2 or 3 posteroventral bristles besides 2 distal bristles.

Anterior femur with long, slender hairs ventrally, similar to the long, ventral hairs on the middle femur; also with an apical posterodorsal bristle and weaker anterior bristle. Anterior tibia with 3 short, slender anterodorsal, 2 or 3 posterodorsal, 2 or 3 quite long, slender posteroventral, and 4 or 5 long, ventral bristles. Tarsi are comparatively short; the first two segments are rather stout; the first is nearly as long as the next two; the tarsi end in long slender, sharp claws, well developed pulvilli and long bristlelike empodium only a little swollen at the base.

Wings: The marginal cell is closed with a very short stalk, the end of this cell wide and abruptly arched. The anterior branch of the third vein ends at or immediately above the wing apex; the posterior branch a considerable distance behind the wing apex; second submarginal cell rather strongly arched basally, the cell flared and wide apically. First posterior cell widely open; fourth posterior cell closed with comparatively long stalk; end vein of the fourth posterior cell and of the discal cell very nearly aligned, offset by a distance equal to a fourth the width of the discal cell. Anal cell narrowly open. Alula absent or extremely narrow and without fringe. Ambient vein ends at the base of the alula. The anterior crossvein enters the discal cell a little beyond the middle.

Abdomen: The abdomen is nearly as wide as the thorax and slightly flattened; it is only gently convex across the middles of the tergites, the lateral area more strongly convex; abdomen strongly punctulate. Seven tergites are present in the male; the seventh is nearly if not quite as long as the sixth and tends to be only slightly curved down or cuplike, and is without posterior, crimped margin, or rim. In profile the first three or four tergites are each somewhat convex; the lateral margins also convex with the incisures indented. Pile of the abdomen minute but abundant, appressed and setate; sides of all of the tergites with a single, moderately long, distinct though not very stout bristle. The male terminalia are large though considerably smaller than in *Adelodus* Hermann and they are concealed only from the dorsal aspect.

Distribution: Palaearctic: *Löwinella virescens* Loew (1871).

Ethiopian: *Löwinella aphoea* Séguy (1950).

Genus *Goneccalypsis* Hermann

FIGURES 282, 663, 1259, 1268, 1590, 1594, 2116, 2127

Goneccalypsis Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 108, 1912. Type of genus: *Atomosia argenteoviridis* Hermann, 1907, by original designation.

Minute, cylindrical, punctate flies with scanty, fine, short pile and few bristles. Face narrow, with prominent scales and with the vertex scarcely wider than the face. The vertex is deeply excavated and bears quite short bristles, except for 1 pair of long bristles on the high, steep ocellarium. Third antennal segment with a moderately large but attenuate microsegment. Length 7 or 8 mm.

Head, lateral aspect: The head is of moderate length and very strongly convex anteriorly. The face is only slightly visible below in profile. Occiput convex and receding above and below; it is somewhat swollen and therefore visible in profile throughout from near the vertex to the bottom of the head; it is micropubescent and bears short, scattered pile below and beginning at the middle a row of 9 very stout, rather short, black, sharp, tuberculate, spinous bristles. Proboscis short and cylindrical, directed nearly straight forward; the apex is subtruncate and pilose. The antenna is slender; first segment quite slender, nearly twice as long as the second; both first and second segments with a few slender, bristly hairs of several lengths. The third segment is as long as the combined length of the first two segments and while of nearly uniform thickness, as wide or less wide than the second segment, it is slightly angulate at its base, especially below, and in this respect, as well as the character of the microsegment, resembles *Atoniomyia* Hermann. At the apex of this segment there is a basally stout, only moderately attenuate, short microsegment, with fine pubescence and minute, blunt, apical spine but no basal spine as in the above mentioned genus.

Head, anterior aspect: The head is of only moderate width. The face has no stout bristles. On the upper half, some distance below the antenna are 2 long, slender bristles or bristly hairs on each side placed vertically and curved downward; 2 similar, long, slender hairs arise from the sides of the lower protuberant part of the face followed by 3 others along the subepistoma which are somewhat shorter. The protuberance bears a wide, characteristic, medial patch of broad scales compounded of massed hairs. Several of them extend a considerable distance beyond the face. The face is only slightly wider below and the front and vertex also only a little widened. Ocular sides of front with 3 weak bristles. Vertex deeply excavated and it and the conical ocellar protuberance with steep sides; the latter bears a pair of long, quite stout, lateral, divergent, black bristles and a slender, shorter pair; anterior ocellus enlarged.

Thorax: The mesonotum is moderately convex, the medial area bare and polished like glass, with acrostical pile, but with rather abundant, appressed pile situated on large triangles placed medial to the humerus and occupying the anterior half of the space in front of the transverse suture. Notopleural area with 1 long, stout, black bristle; postalar area with 1 bristle; supraalar area with 1 and the scutellar margin with a pair of widely separated, unusually long, stout, black bristles. Scutellum only very slightly convex, polished and bare except for about 12 scattered hairs and a few others on the margin. There is a deep, impressed, premarginal crease. Pleuron micropubescent with a vertical, middle, bare stripe and numerous, fine hairs on the upper mesopleuron and a single, very long, delicate hair from the upper posterior corner of the mesopleuron. Hypopleuron with a few, long hairs and long and short pubescence. Metapleuron with a vertical row of about 8 divergent, fanlike hairs, extremely long, rather fine, pale, and bristly. Slopes of the metanotum with a peculiar patch of 11 moderately long, extremely stout, tuberculate, spinous bristles.

Legs: The middle femur has fine, long pile ventrally and a weak, anterior bristle at the outer third, a longer, stouter bristle anteriorly at the outer fifth. Middle tibia with 3 fine, weak, pale, posterior bristles and growing longer towards the apex; also with 3 long, pale, ventral bristles, the basal and middle elements exceptionally long and oblique, the apical bristles shorter. This tibia likewise has anteriorly 4 longer, stout, black, anterior bristles, the basal bristle short, the last 2 elements longest. Middle basitarsus with 1 extremely long, pale, posteroventral bristle at the base, and apically with 1 medium and 1 quite long, stout, black, anterior bristle and 2 short, posterior bristles. Anterior legs rather similar, the femur without bristles but with long pile below; this tibia has 3 extremely long, posterior bristles, 3 weak, ventral, and 3 weak dorsal bristles. Anterior basitarsus with a single, extremely long, pale, posterior bristle at the base. The apex has 2 moderately long, dorsal, black bristles; one of these is lateral and the other is extremely long, stout and anterior. Second anterior tarsal segment with 2 moderately long, apical, dorsal bristles and anteriorly and posteriorly with a single, extremely long, stout, black bristle. Claws sharp; pulvilli four-fifths the length of the claw; empodium long and slender, bristlelike.

Wings: The marginal cell closed with a quite short stalk. Fourth posterior cell closed with a moderate stalk and the anal cell closed in the margin. The alula is linear and narrow and the ambient vein ends just beyond the anal cell. The veins closing the discal and fourth posterior cells form almost a straight line in one wing, and are slightly offset in the second wing.

Abdomen: The abdomen is rather like *Atomosia* Macquart but more slender and strongly punctulate, shining and with abundant, short, subappressed pile; the sides of the first segment have a radiating fan of 7 pale, weak bristles and the middle of the lateral margin of each remaining tergite has a single, pale, weak but distinct bristle. The terminalia are visible laterally and are only moderately conspicuous.

Distribution: Ethiopian: *Goneccalypsis argenteoviridis* Hermann (1907).

Oriental: *Goneccalypsis lucida* Hermann (1912).

Genus *Opeatocerus* Hermann

FIGURES 283, 661, 1277, 1285, 1595, 2128

Opeatocerus Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 106, 1912. Type of genus: *Atomosia purpurata* Westwood, 1849, by original designation.

Small, dark, short pilose, cylindroid flies with the thorax and abdomen coarsely punctate. The face is narrow, with nearly parallel sides and the deeply excavated vertex is no wider than the lower face. The antenna is shorter than in *Dichaetothyrea* de Meijere; the first antennal segment is only a third as long as in that genus and the terminal microsegment of the third antennal segment is smaller, more strongly tapered and not short plumose. Length 9 mm.

Head, lateral aspect: The face is plane with the eye, except on the lower third where it is gently produced and rounded and retreating below. The eye is strongly convex anteriorly and gently and distinctly convex posteriorly. Occiput very short and only visible narrowly along the middle of the posterior margin; its pile is scanty and fine, a little longer on the lower fourth of the head and short and very sparse in the middle; bristles, about 9 on each side, begin just above the middle and are remarkably stout and spikelike. Some of the bristles are doubled and others are placed sublaterally and do not appear except posteriorly. The proboscis is small, very short and stout with the apex bluntly rounded. It is cylindrical and from the dorsal aspect scarcely widened towards the base; sides smooth and polished; the base below is a little swollen. In the unique type of Westwood's species it is thrust obliquely downward but it does not extend as far as the face. Palpus extremely short and cylindrical, with a stout, apical bristle. I have not been able to determine if a basal segment is present. The antenna is attached at the upper fourth of head; it is but little longer than the head. The first segment is short and about half as long as the second; the third is moderately longer than the combined length of the basal segment, is slightly narrowed at base and apex, is short pubescent, and has a short, attenuate, indistinctly separated terminal microsegment which has somewhat longer micropubescence and also a short, blunt, dorsal spine at the point of attachment.

Head, anterior aspect: The face is relatively narrow; below the antenna it is about a fifth the head width. The face is pubescent and bears 2 quite long, unusually stout, strongly curved bristles on the lower protuberance besides 2 long, slender hairs lower on each side, along the subepistomal margin. Shortly below the antenna on each side is a single long, moderately stout, downward curved bristle shorter than those which emerge at the epistoma. Middle of face with a vertical row on each side of 6 to 8 shorter, fine, curved hairs. The front is slightly widened, the vertex also, but not wider than the lower face. Vertex deeply excavated with slanting side. The high ocellar protuberance has vertical sides and bears large, anterior ocellus and a pair of long, stout, divergent, black bristles and 2 pairs of quite short, fine hairs.

Thorax: The mesonotum is deeply, coarsely punctate, with a few, scattered hairs transversely across the middle of the anterior mesonotum; there is dense, short, subappressed pile laterally. Humerus pilose. The notopleuron has at least 1 short, stout, black bristle, the supraalar area has 1, postalar 1; the scutellum in the unique type of Westwood's species is destroyed by mashing. The metapleuron bears long and short pubescence and 1 or 2 hairs. Mesopleuron micropubescent, with 1 small, weak bristle above. Anterior pronotum with stiff hairs. Metapleuron with a fan of 7 long, pale hairs, the lower 3 are quite long. Lateral metanotum with bristles and pile. Postmetacoxal area with a chitinized arch.

Legs: All the femora and the anterior 4 tibiae are pale yellowish brown. Posterior tibia yellow basally, dark brown beyond, all the tarsi quite dark brown. The hind femur is rather strongly thickened, convex above and not quite plane below; it bears a dense brush of long, erect, ventromedial pile and 2 or 3 quite long, ventromedial hairs; the middle element longest. The anteroventral margin has 3 or 4 almost equally long, fine, bristly hairs. Hind tibia slightly arcuate, with long, dense, erect, fine pile ventrally and with accentuated bristles. There are 2 very long, ventral bristles, the element at the basal third is extremely long and stout; 3 dorsal bristles, the middle and distal bristle long; also with 2 lateral, long, stout bristles, the bristle located at the distal third being especially long and stout. The apex bears weak bristles, 2 laterally, 5 ventrally, preceded by a matted tuft of stiff pile. Apex of hind basitarsus with a pair of quite long, stiff, dorsal, divergent bristles. Middle femur slightly thickened, with a few fine hairs below; beyond the middle, 2 of these hairs are quite long; the middle of midfemur has well developed bristles consisting of 1 ventral at the basal third and 1 at the apical third, both exceedingly long, oblique, and stout. There are 4 anterodorsal bristles; the elements at the basal third and the apical third are extremely long and unusually stout; 2 weaker, dorsal bristles are present. The apex bears 2 short dorsal; 2 anterior, 4 central, and 2 posterior bristles.

Anterior femur similar, the tibia likewise with long, strong bristles, the posteroventral elements extremely long and stout; the 5 ventral bristles, are shorter and weaker, the 3 dorsal bristles moderately long and stout. The anterior tarsi bear astonishingly long bristles; on the basitarsus 1 bristle arises posterobasally, and is longer than the first three segments; from the apex 3 bristles arise, the anterior element is as long as three or more segments. Equally long bristles arise from the apex of the second segment. Claws moderately sharp, strongly curved at the apex, the pulvilli three-fourths as long as the claws; the empodium nearly as long as the pulvillus and strongly thickened at the base.

Wings: The marginal cell closed with a quite short stalk. First posterior cell widely open; fourth posterior cell closed with an exceptionally long stalk. Anal cell narrowly open, ambient vein reaches to the alula; alula narrow and linear.

Abdomen: The abdomen is only gently convex and rather flattened. The proportions of the abdomen are much as in *Atomosia* Macquart. These flies are less slender and much broader than in *Clariola* Kertész or *Goneccalypsis* Hermann. Pile of abdomen dense, fine, short, setate and appressed. There are seven tergites present; the lateral margin of the first tergite bears a vertical row of 4 stiff, pale, moderately long, spinous bristles; each succeeding tergite bears in the middle of the lateral margin a well developed, curved, pale, stout bristle. Terminalia completely hidden by the cupped apex of the abdomen.

Distribution: Oriental: *Opeatocerus purpurata* Westwood (1849).

Genus *Dichaetothyrea* de Meijere

FIGURES 264, 673, 1347, 1356, 1577, 2120, 2126

Dichaetothyrea de Meijere, Tijdschr. Ent., vol. 56, suppl., p. 58, 1914. Type of genus: *Atomosia punctulosa* de Meijere, 1911, by original designation.

Minute, slender and punctulate flies. The abdomen is elongate, subcylindrical, and the pile is minute, short, and rather scanty. Antenna unusually elongate; the third segment bears a long, slightly tapered, short plumose or long pubescent microsegment and at its junction with the third segment is a dorsal spine. Vertex deeply excavated; ocellarium high, with steep sides and the face narrow. Length 7 or 8 mm.

Head, lateral aspect: The head is of moderate length; each eye is quite convex anteriorly. The face is not visible in profile except below, where it is slightly protuberant yet not produced as far as the middle of the face. The occiput is micropubescent with 4 stiff, rather short, sharp bristles situated dorsally but located deeply within the dorsal recession between the eyes. Proboscis quite short, small, cylindroid and thrust directly forward horizontally and not extending beyond the facial protuberance. Palpus extremely small, with two segments recessed beside the proboscis and not visible in profile. The antenna is long and slender, the first segment a little more than twice as long as the second and with 1 long bristle below in the middle; the second segment has 2 ventral apical and 1 dorsal apical bristle, besides a shorter bristle above and below. The third segment is a little longer than the combined length of the first two and divided into two portions; the outer portion is two-fifths the length of the whole segment and constitutes an extensive microsegment, a little more slender but with considerable long micropubescence; the dorsal apex of the basal section has a distinct, very stout but rather short spine.

Head, anterior aspect: The face is narrow, no more than two-thirteenths the head width; it is slightly widened below. Face entirely micropubescent, with a pair of long, slender, bristly hairs above and 3 or 4 other shorter hairs above and below; on the protuberance are 2 still longer, slender, bristly hairs followed by 2 submedial hairs, almost as long, on the lowest margin; subepistomal margins with 2 pairs of long, slender hairs unequal in length. The front is a little wider above; ocellar tubercle high, with vertical sides and a single pair of long, stiff bristles. Anteromedial and central facets of eye only slightly enlarged.

Thorax: The thorax is slightly convex, without pile medially on the anterior half but with short, recumbent pile laterally. Notopleuron with 1 to 2 long, fine, stiff hairs; 1 upon the postalar and 1 upon the supraalar region. Scutellum with sparse, appressed, discal pile and erect soft, short, marginal pile besides a pair of conspicuous, long, stout, sharp, divergent, black bristles. Prosternum and prothorax fully united. Humerus pilose. Cervical region quite short. Pleuron micropubescent, with 1 long, slender, bristly hair posterodorsally on the mesopleuron. Mesopleuron and sternopleuron distinctly fused without trace of suture. Hypopleuron with 2 or 3 fine hairs. Metapleuron with a vertical row of 4 quite long, slender hairs and a few shorter elements in front. Lateral slopes of the metanotum distinctly pilose.

Legs: The hind femur slightly thickened on the distal half, with 1 slender, dorsoapical bristle and a single, quite long, lateral bristle at the distal third. Also present are several fine, long hairs ventrolaterally and a fringe of long, erect, ventromedial pile. Hind tibia of nearly uniform width throughout, with 3 quite long, rather stout, dorsal bristles located at the basal and apical third and also with long, more slender, ventral bristles. Apex with short bristles below. Hind basitarsus with long, stout bristles anteroventrally at base and apex; second segment with 3 bristles at apex. Middle femur slightly swollen distally, with 1 fine, dorsal bristle at the outer third and 1 subapical bristle anteriorly. Middle tibia with 2 extremely long, bristly hairs anteriorly near basal and apical third and 2 equally long, ventral hairs. Dorsal or anterodorsal bristles are 3 in number and are more slender and only half the length of the former. Anterior femur with 2 bristly hairs near the apex; the tibia has 1 quite long and 2 short, ventral, bristly hairs and with 3 long, stouter, posterior, bristly hairs. The apex of the anterior tibia has a small, yet distinct spur or short spine which is dorsal in position and easily overlooked.

Wings: The wings are slender, the alula is reduced to a linear trace, distinct but less wide than the width of the costal cell. Marginal cell closed with a short stalk. Fourth posterior cell closed with a long stalk.

End of discal cell adjacent to the end of the posterior cell or very slightly shorter, so that the veins closing these two cells form, or nearly form, a straight line. Anal cell closed with a very short stalk.

Abdomen: the abdomen is comparatively elongate and only slightly wider distally. It is slightly convex but becomes more convex on the posterior segments. Seven segments are distinctly visible and all of them rather strongly punctulate. Sides of the second to sixth tergites with a rather long, but weak, lateral bristle placed in the middle of the margin. First tergite with a dorsal row of 3 or 4 equally weak bristles.

Distribution: Oriental: *Dichaetothyrea punctulosa* de Meijere (1911).

Genus *Bathropsis* Hermann

Figures 251, 665, 1294, 1303, 1349, 1358

Bathropsis Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 68, 1912. Type of genus: *Bathropsis peruviana* Hermann, 1912, by original designation.

Small, black flies with the abdomen coarsely and deeply punctate. The hind femur is swollen and the face narrow. The antenna is exceptionally elongate and quite slender and the spine of the third segment is placed at the apex. They suggest *Cerotainia* Schiner in general appearance and differ from this genus in the narrow and convergent vertex. Length 8 to 10 mm.

Head, lateral aspect: The head is of medium length and strongly convex anteriorly. The face is very short, scarcely visible in profile, a little more in evidence below. The occiput is prominent, except on the upper fourth, where the eye margins overhang it. Occipital pile short, abundant and fine, with stout bristles beginning above the middle and consisting of some 10 pairs. The proboscis is very short, robust, swollen below at the base and the apex truncate. Palpus minute, the first segment more or less fused to the base; the second segment is short and cylindrical. Antenna attached just below the upper third of the head and about twice as long as the head, quite slender, the first segment slender and four times as long as the beadlike, second segment; each of these segments bears several slender, ventral bristles and some bristly pile below and above. The third segment is of uniform width, the apex rounded and bearing a spoon-shaped, dorsal depression with spine.

Head, anterior aspect: The head is but little wider than high, yet nearly as wide as the thorax; the face is narrow, slightly divergent and below the antenna less than a fifth the head width. It is unusually finely micropubescent with pile restricted to 8 or 10 fine, scattered hairs on the upper part and a narrow band of more numerous hairs above the epistoma. Also there is a vertical row on each side of 7 or 8 long, slender bristles. Subepistomal area small and oblique. Front distinctly divergent, convergent again at the vertex, the sides with a V-shaped groove. Vertex deeply excavated, the ocellarium high and narrow with a pair of stout bristles and 1 or 2 bristly hairs. Anterior eye facets a little enlarged.

Thorax: The thorax is rather low but short; the mesopleuron is poorly developed anteriorly, as in *Atomosia* Macquart. Surface of mesonotum densely covered with strongly curled and appressed short hairs, nowhere differentiated. Humerus with stiff hair, the lateral bristles moderately developed; there is 1 notopleural, 3 supraalar, 1 postalar and on the scutellar margin a few, fine, erect, not very long, marginal hairs; the disc bears dense, curled pile. Mesopleuron with 2 bristles; the convex, anteriorly flattened metapleuron with a band of moderately abundant, long, comparatively stiff bristles. Upper and posterior border of the mesopleuron with scattered pile; the upper sternopleuron and posthypopleuron each bear a few hairs. Propleural pile scanty. Prosternum continuous and fused. Middle of pleuron partly bare. Metanotal callosity with a patch of bristles. Metasternum pilose, the postmetacoxal area with a complete band of chitin.

Legs: The femora are rather short and stout. The dorsal pile is dense, appressed and setate; all bristles are weak, but are strongest in the anterodorsal and ventral rows of the middle tibia and posteroventral row of the anterior tibia, where the bristles become long and finely attenuate and each row has 3 or 4 bristles. The hind femur is rather strongly swollen on the outer third. Hind femur with 2 slender, dorsal, distal bristles, the more medial ones nearer the apex and the basal third with 2 longer, ventral elements. Ventromedial surface of hind femur and tibia each with a dense band of rather long, erect, fine pile apparently with glandular tips. Hind tibia stout with 4 or 5 slender, dorsal, distal lateral and 4 ventrolateral, longer bristles. Claws fine, sharp; pulvilli and empodium well developed.

Wings: The wings are broad and slightly tinged basally with brown; the closed marginal cell is rather wide apically, with a moderate stalk; the anterior branch of the third vein arises abruptly at nearly a right angle; the posterior branch ends far to the rear of the wing apex. Stalks of the fourth posterior and anal cells long; the end vein of the fourth posterior cell is oblique to the upper end vein of the discal cell. The lower end vein of the discal cell is nearly as long as the upper end vein. Other posterior cells widely open. Alula short, the ambient vein evanescent, beginning at the end of the fifth posterior cell.

Abdomen: At the base the abdomen is nearly as wide as the thorax and everywhere coarsely punctate. The last three tergites are a little more narrow and more convex. Six tergites in the male, the last moderately cupped and emarginate, with a minute, concealed genitalia, and similar to *Atomosia* Macquart. Pile short, subappressed and setate. Some tergites bear quite stout, lateral bristles; the first tergite has 6 pairs, the next two tergites each with 3 pairs, the fourth bears 1 pair of bristles.

Distribution: Neotropical: *Bathropsis basalis* Curran (1930); *peruviana* Hermann (1912).

Genus *Oidardis* Hermann

FIGURES 218, 677, 1260, 1269

Oidardis Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 76, 1912. Type of genus: *Oidardis gibbosa* Hermann, 1912, by original designation.

Small, black flies with a narrow face and with front and vertex divergent. The face is scarcely or not at all visible in profile even ventrally and bears in vertical row on each side 3 long, slender bristles on the lower face. The antenna is shorter than in most allied genera and the third segment more stout or of greater breadth, with a comparatively blunt apex and no microsegment; this segment does bear subapically a minute, nascent spine, which is also subdorsal and therefore does not appear from a profile view. The mesonotum is rather shorter and more humped than in other Atomosini; the genus is probably related to *Eumecosoma* Schiner. The abdomen is relatively broad and short and with the mesonotum lacks punctures. Length 7 to 8 mm.

Head, lateral aspect: The head is short, strongly convex anteriorly but plane posteriorly except the lower corner, which is broadly rounded. Face scarcely visible in profile but very slightly elevated on the lower fourth. The occiput is rather narrow; the upper part has a deep medial row of 10 or more rather stout bristles; the upper 6 bristles are a little more stout and black. The proboscis is relatively slender, slightly compressed laterally, of uniform width in profile; the apex is bluntly rounded and bears a tuft of long, yellow pile below; at the base is a single pair of ventral, very long, moderately stout bristles. Palpus small, cylindrical, of two segments; basal segment with 7 long, pale hairs; apical section with 1 ventral and 3 yellow, apical hairs. The antenna is barely longer than the head; the first two segments are subequal and each bears a single, long, stout, black bristle arising from the middle below. The second segment has 2 unusually long, stout, black bristles dorsally and apically; other short, black bristles are found apically on both segments. Third segment is 1½ times as long as the first two segments combined; at its middle it is slightly wider than the second segment and it is obliquely dorsally truncate at apex; the apex may bear ventrally an extremely minute, short spine, or subapically above, lying laterally and subdorsally there may be a minute, nascent spine.

Head, anterior aspect: The face is narrow, less than an eighth the head width below the antenna; it is entirely micropubescent and is very slightly divergent below. Pubescence along eye margin longer but rather appressed. The lower and slightly elevated part of the face bears 3 or sometimes 4 pairs of strong, long, anteriorly directed bristles arranged vertically on each side. Also, there is a long, fine, curved hair at the extreme lower lateral corner of the eye. Upper face with 3 or 4 short, pale hairs. Sides of front with a single, black bristle. Both front and vertex are divergent. The vertex is only moderately excavated; ocellar protuberance no higher than upper eye margin, with slanting sides and bearing a pair of moderately long, stout, black bristles divergent, and curved backward. Anterior ocellus enlarged; anterior eye facets strongly enlarged.

Thorax: The mesonotum is everywhere appressed, fine, yellowish pilose including the flat humerus. The lateral bristles are long, strong and black and consist of 1 notopleural, 1 supraalar, 1 postalar, and 2 pairs of scutellar bristles on the margin. On the mesopleuron are 36 bristles; on the hypopleuron a few, long hairs. Metapleuron with a vertical band of 10 to 12 quite long, downwardly curved, slender, yellowish to brownish bristles. Slopes of metanotum with abundant pile. Lateral metasternum pilose and postmetacoxal region short and chitinized.

Legs: The hind femur short, stout, with dense, black appressed pile above and with long, stout, lateral, black bristles, 1 near base and 1 subapical; and also there is a dorsal pair of divergent bristles near apex. Ventrolaterally there is a row of 15 rather long, slender, bristly hairs which are numerous near apex. The ventral margin submedially has 2 rather long, slender, yellow, erect hairs, 1 at base, 1 at middle and the ventral margin also bears numerous, moderately long, erect, yellow hairs consisting of 45 on distal half and about 15 on the basal half. The distal hairs are slightly spatulate or widened apically. Posterior tibia with very abundant, similarly erect, spatulate pile from base quite close to the apex, the apices of pile slightly curled; the extreme, ventral apex of tibia with the usual dense, flat appressed mat of pile in several ranks. Hind tibia with 3 long, slender, anteroventral, yellow bristles, besides 1 weak and 1 long, strong, lateral, curved, black bristle with the long element placed in the middle. Apex with 2 lateral and 1 ventral bristle; first two segments of tarsus with 2 long bristles, 1 dorsal and 1 medial, and 3 very stout, shorter, lateral bristles. Middle femur with long, stout, anterobasal bristle; a shorter, stout, anteroapical bristle and a pair of dorsoapical bristles. Middle tibia with extremely long anterodorsal and anteroventral, black bristles, 2 above, 3 below; the lower elements are strongly oblique; the ventral surface is beset with numerous, erect, shorter, stiff hairs; first two segments of tarsi with long, apical bristles, the first segment also with a long posterobasal bristle.

Anterior femur with a stout bristle near the middle posteriorly; its tibia has 3 long, slender, posterior bristles and 1 long, ventral, subapical bristle. Apex with long bristles, 2 dorsal, 2 posterior, 2 anterior, 3 ventral. Anterior basitarsus similar to middle tarsus. Pulvilli nearly as long as claws; empodium fine, long and slender.

Wings: Marginal cell closed with a long stalk. Fourth posterior cell closed with a very short stalk. Veins closing fourth posterior cell and discal cell offset by one-half the end of discal cell or less and this connecting vein is oblique in position. End of fourth posterior cell slightly oblique. End of the second basal cell with 3 veins, the middle vein short. Anal cell with moderately long stalk. Alula narrow but convex;

the ambient vein ends at the end of the second posterior cell.

Abdomen: The abdomen is coarsely punctulate; normally, slightly more narrow on the basal tergite than thorax. Each tergite is slightly widened to the end of the fifth. The fourth to seventh tergites are more strongly convex; the seventh tergite is slightly wider than thorax. The sides of the first tergite bear a vertical row of rather long, moderately stout, pale bristles. Middle of second tergite laterally with or without moderately pale, long bristles and a fringe of long, white hairs. The remaining tergites have fringe of long, white hairs without a middle bristle but there is 1 slightly longer, slightly stiffened, pale bristle in the posterior corner of the fifth, sixth and seventh tergites. Seven tergites are present, the seventh considerably shorter than the sixth. The last two tergites are cupped downward obscuring the minute, male or female terminalia.

Distribution: Neotropical: *Oidardis gibbosa* Hermann (1912); *aenescens* Hermann (1912).

Genus *Automolina* Hermann

FIGURES 262, 667, 1327, 1335

Automolina Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 101, 1912. Type of genus: *Automolina chilensis* Hermann, 1912, by original designation.

Small, black, robust flies characterized by the dense, fine, short, usually pale, matted or flat-appressed setate pile in males; females without matted pile, but shining with scanty, scattered, semierect, mesonotal hairs and short, suberect, more dense, dark abdominal setae. Characteristically, the face has rather numerous long, slender bristles and bristly hairs directed straight outward on both the plane upper face and the gentle, low, ventral gibbosity. First antennal segment short and third segment only about twice the length of the first two and obliquely truncate at the wide apex. These flies suggest *Eumecosoma* Schiner in general appearance but are more robust with abundant face pile and different antenna and with shorter, wider, flatter abdomen. In *Lamprozona* Loew the third antennal segment is longer and distally attenuate with unmodified apex and its proboscis is even smaller. Length 7 to 10 mm.

Head, lateral aspect: The head is short and the face is slightly visible on the upper part but more prominent below due to posterior recession of the eye. The upper occiput bears on each side a deep, sublateral row of 6 or 7 long, stout, brownish yellow bristles; the posterior profile of the eye is almost plane but is oblique, due to the gradual recession of the eye, leaving the lower occiput prominent. The proboscis is quite short, cylindrical, obliquely truncate at the apex and directed obliquely downward. Palpus minute. The antenna has the first two segments short and of nearly equal length; the second segment is monilliform, with 1 or more long, stout, black bristles ventrolaterally. The third segment is slender basally for a short distance, then expands to near the apex. The apex has a dorsoventrally flattened, apical, scooplike extension forming a separate subsegment and lying some distance back from the bowllike opening is a blunt spine.

Head, anterior aspect: The face is less than one-fifth the head width, the sides are parallel. The upper face has 2 long and 2 adjacent, short, fine, black bristles and below near the eye margin 2 almost equally long, fine hairs followed by 2 shorter hairs. The low, ventral protuberance of the face bears a medial pair of long, weak, anteriorly directed bristles; on each side still lower there are approximately 16 short, black bristles. The vertex is strongly excavated. The ocellar protuberance is high with abrupt sides and bears anteriorly a pair of quite long, stout bristles; it also bears on each side a pair of almost equally long, slender, divergent bristles and an additional similar pair between the posterior ocelli; all these bristles are black.

Thorax: The mesonotum is slightly convex and densely short, appressed pilose; there are present 2 narrow, submedial, partly bare stripes and the supraalar region and much of the metapleural region are chiefly bare. Humerus large, rather flat and with flat appressed pile. All the mesonotal pile is flat appressed. Weak, long, slender bristles are present and consist of 1 notopleural, 1 supraalar, 1 postalar and the scutellar margin with 2 pairs; the prescutellar area has 8 to 10 fine, long hairs. The anterior half of the mesonotum bears a few, fine, long, scattered hairs. Mesopleuron with fine, long pile dorsally and a few, fine hairs in the middle posteriorly. The greater part ventrally and posteriorly is bare, as well as the upper anterior sternopleuron. Hypopleuron with a few, long hairs. Metapleuron with a vertical band of extremely long, fanlike, fine, apically curved pile. The metanotal slopes are pilose with numerous hairs. Lateral metasternum densely fine pilose; postmetacoxal area chitinized. Prosternum not dissociated.

Legs: The hind femur is stout but not greatly thickened. At the apex is a pair of long slender, black, dorsal bristles; the more medial element has an additional, long, slender bristle behind it. The dorsal margin sublaterally has a row of 3 moderately stiff, black bristles. Lateral margin with 3 equally long, similar bristles confined to the outer half. Ventral margin with long, fine, abundant, erect, pale pile and with 3 long, slender, erect, pale bristles. Hind tibia with a long, erect, ventral band of pile which at the apex is replaced by a mat of flat appressed, dense, coarse pile. The bristles consist of 4 long, slender, dorsal elements, 2 longer, stout, lateral bristles besides 1 short, subdorsal bristle at the basal sixth. Ventrally there are 4 extremely long, slender, slightly oblique, apically, curved, black bristles and ventrolaterally about 5 much shorter, stiff, black hairs; the ventral fringe is yellow. The apex bears 2 stout, ventrolateral, 1 lateral, and 2 medial bristles. First tarsal segment nearly twice as long as the second; the first and second segments bear 3 exceptionally long, stout, apical bristles. The middle femur has 2 bristles anterodorsally, 1 posterodorsally near apex and 2 long, stout bristles laterally near the apex in a row; ventrally it bears long, erect pile. The middle tibia has extremely long, very stout, oblique bristles in the dorsal and ventral rows, 3 or 4 dorsal, 4 ventral elements with shorter bristles, and 5 posterior bristles. The apex has 2 dorsal, 2 posterior, 4 ventral, and 3 anterior bristles.

Anterior femur with 4 dorsal bristles on the outer half, with long, slender, pale, erect pile below. Anterior tibia with 3 long, ventral bristles, 6 posterior, 8 long, dorsal posterior bristles and 4 dorsal bristles confined to the basal half. Apex with 7 long bristles. Basitarsus with 2 long, posterior bristles and 2 dorsal, divergent bristles. Second tarsal segment with equally long, stout bristles. Claws sharp, divergent, strongly curved at apex. Pulvilli nearly as long as claws. Empodium as long as the claws, and stout and sharp.

Wings: The marginal cell is closed and stalked. The veins closing the discal cell and fourth posterior cell are offset by nearly the length of the upper vein. Fourth posterior cell closed with a long stalk; anal cell closed with a short stalk; alula narrow; ambient vein complete or ending at anal vein.

Abdomen: The abdomen is similar in appearance to *Atomosia* Macquart but much broader and as wide as the thorax but not punctulate. Sides of the first tergite with a fanlike row of 7 quite long, weak, widely spaced, vertical, apically curved bristles. Sides of the second and third tergites with a few, long, pale hairs but no bristles. Dorsal pile of the tergites flat appressed, longer and almost matted on the basal margins. Males with six tergites of nearly equal length, and the seventh triangular and quite short and less than a fourth as along as the sixth. In the male only a minute, linear edge of the seventh tergite shows from above. Females with eight tergites, the seventh much shorter than the sixth, the eighth liplike and largely concealed beneath the seventh. Male terminalia small, well recessed and concealed, and of the general type of *Atomosia* Macquart, with an encircling arm from each gonopod. Female terminalia sometimes visible from above; it is thinned, gently convex, a little narrowed and has a V-shaped, medial indentation giving the appearance of two paired protrusions. Sternites without bristles and extremely short pilose.

Distribution: Neotropical: *Automolina chilensis* Hermann (1912).

Genus *Despotiscus* Bezzi

Figures 669, 1313, 1314, 1322, 1323, 2124, 2170

Despotiscus Bezzi, Diptera, Brachycera and Athericera of the Fiji Islands, p. 42, 1928. Type of genus: *Despotiscus simmondsi* Bezzi, 1928, by original designation.

Quite small, short, compact flies; characterized by the nearly aligned end veins of the discal and fourth posterior cells, the chitinized postmetacoxal region, the distinct bristles on the lateral metanotum, the absence of tergal bristles but especially by the long, abundant, quite flattened, golden, scalelike pile, which is formed in vertical rows on the face of the male with only isolated, slender, black bristles on the female face. The proboscis is quite small, cylindrical, a little constricted near the middle and not as long as the face. The mesonotal pile is strongly appressed, particularly in the males, where it is golden and scalelike anteriorly, and the dorsocentral bristles are well developed posteriorly. On the third segment of the antenna, near the apex, is a distinct spine close to the short, apical microsegment, but not borne by it; this relates it to the Afro-Asian genus *Goneccalypsis* Hermann and to *Opeatocerus* Hermann. From *Chymedax* Hull it is separated by having the normal number of posterior cells. Length 6 or 7 mm.

Head, lateral aspect: The face is nearly or quite plane to the eye on the upper portion; the whole face is plane except above the epistoma, where it is a little convex and retreating and a small portion appears ventrally, due to the recession of the eye only. The eye is of moderate length, only slightly narrowed below, but strongly convex on the dorsal part with a moderate, posteroventral recession beginning at or above the middle of the head. Occiput moderately developed, especially medially, but quite obliterated dorsally. Pile of the occiput fine, of only moderate length, and comparatively scanty. There are 8 to 10 pairs of rather stout bristles on the upper half, all black; 5 of these form a deep-set, irregular patch behind the vertex. The proboscis is small, cylindrical, a little swollen at the base below and truncate apically; it is slightly constricted just beyond the middle, especially below. Apex with short, bristly pile; the base below and along the sides has 7 or 8 rather stiff, bristly hairs. Palpus minute, very short and cylindrical with apical, bristly hairs; the number of segments remains undetermined. Antenna attached at the upper fourth of the head; the first two segments are quite short, of nearly equal length, the first bears a single, isolated, long, slender, ventral bristle besides a shorter, sublateral bristle and 2 or 3 dorsal setae; the second segment bears 1 long and 1 short, ventral bristle and at least 2 rather long, slender, dorsal bristles. A further difference between male and female lies in the fact that the male face is visible on at least the lower two-thirds and instead of being nearly plane is strongly convex and more strongly retreating below.

Head, anterior aspect: The face below the antenna is one-fourth the head width and barely wider at the epistoma. Subepistomal area quite small, nearly horizontal, concave and bare. Face densely but coarsely pubescent, bearing in the male a sublateral, vertical row of very broad, bandlike or scalelike hairs that probably represent adjacent aggregation of separate hairs. Additional, similar hairs occur over the middle of the face; viewed laterally they are ranked in the manner commonly seen on tarsi. The whole, presenting a rather matted appearance, extends well down and beyond the proboscis. Lateral margin of the subepistoma with 4 long, slender, golden bristles; these scalelike hairs begin shortly beneath the antenna. In the female the face is apilose, with a pair of long, slender, black bristles strongly curved, extending forward shortly beneath the antenna and 2 other pairs over the middle of the face, 2 additional long pairs near the bottom of the face, and along the epistomal margin in front 2 or 3 long, slender pairs and other short, bristly pile, besides 4 pairs along the lateral subepistoma. Front quite short, with a row of 4 or 5 slender, bristly hairs along the eye margin. Vertex deeply excavated, with slanting sides; the ocellarium large, high and with steep sides and abrupt behind, bearing dorsally a pair of moderately stout, long, pale, divergent bristles, and between the posterior ocelli a pair of shorter bristles. Anterior eye facets moderately enlarged.

Thorax: The thorax is densely appressed pubescent on all the pleura but much less conspicuously on the pteropleuron and metapleuron. Mesonotum not pubescent, the pile abundant, short, bristly, flat appressed; in the male it is golden anteriorly and slightly but distinctly flattened. Acrostical and dorsocentral elements not differentiated anteriorly but there are 4 pairs of long, slender, posterior dorsocentral bristles. Humerus with abundant, long, bristly pile. In the type of genus the following complement of moderately long, stout, lateral bristles are present: 1 notopleural, 1 or 2 supraalar, 1 postalar, but no scutellar bristles. Scutellum thin, slightly convex, the margin strongly convex and bearing 3 pairs of short, erect, inconspicuous, bristly hairs. Disc with abundant, short, bristly suberect pile; margin not impressed; base with deep crease. Propleuron with a few stiff hairs ventrally and posteriorly; the pronotum with longer, similar hairs. Mesopleuron with a few scattered, bristly hairs dorsally along the border and with a conspicuous, rather long and comparatively stout posterodorsal bristle. Pteropleuron apilose, the posthypopleuron has 5 or 6 long, slender, stiff hairs, the metapleuron has 5 quite long, slender bristles curved downward apically. Lateral slopes of the metanotum with a copious patch of short, stout bristles and bristly pile, pale in the male but black in the female. Postlateral metasternum with abundant, long, fine pile; the ventral metasternum has a few, fine hairs and a pair of long, anterior, slender, submedial, bristly hairs, the whole is rather weakly chitinized apparently and the postmetacoxal area is large, forming an extensive, chitinized arch; tegula pubescent only.

Legs: The femora are moderately stout without being noticeably swollen; the middle femur is perhaps very slightly swollen distally; the dorsal pile of all of them short, appressed and setate, the ventral medial surface of the posterior femur bears a moderately abundant, erect, fringe of fine, long, pale pile from base to apex; ventral surface of hind tibia with similar, shorter fringe from near the base to the apex; there is no brush of setae distally though they are well developed and ranked on the first two tarsal segments. In the type of genus the following complement of long bristles is present; on the hind femur a single unusually long, lateral bristle at the outer third; a short, slender, dorsolateral and dorsomedial subapical bristle and the ventral surface near the base with 1 or 2 long, slender, pale bristles. This tibia has 4 slender, dorsomedial bristles, the apical bristle long and conspicuous and with 2 conspicuous, exceptionally long, stout, lateral bristles at the basal and apical third and 3 equally long, more slender, curved ventral bristles. Middle femur with a short, subapical, posterodorsal bristle, a similar, longer, anterior bristle, and 1 anterodorsal, weaker counterpart; the ventral surface bears 7 or more long, black, basally stout, attenuate, oblique, anterior bristles and 3 equally long, stout, posteroventral bristles. These bristles are from half to three-fifths as long as the tibia and there are 4 or 5 additional long, slender, ventral, bristly hairs and 3 or 4 shorter, posterodorsal bristles.

Anterior femur with a weak bristle anterodorsally near the apex and a ventral fringe of bristly hairs; its tibia has 4 or 5 short, slender, dorsal and 4 long, basally stout, posteroventral bristles. On the ventral surface are 6 elements, the basal one no more than a hair, the next 2 quite slender but longer, the next 3 long, and basally stout. All tarsi end in slender, sharp claws, well developed pulvilli and long, bladelike empodium.

Wings: The marginal cell closed with a moderately long stalk; the anterior branch of the third vein ends a short distance above the apex; the posterior branch ends at least 4 times this distance to the rear; first posterior cell not narrowed; the upper end vein of the discal cell and of the fourth posterior cell is obliquely offset by one-third the distance of the upper vein. Fourth posterior cell closed with a moderately long stalk; the anal cell likewise; the second basal cell ends in 3 veins, the middle vein short with a thyridium above. Alula as wide as the costal cell above; ambient vein complete.

Abdomen: The abdomen is comparatively short and robust, not quite as wide as the mesonotum except posteriorly; it is slightly wider distally and strongly punctulate. Pile of abdomen moderately abundant, flat appressed in both sexes, minute and setate. In the male the pile is golden and slightly flattened. Sides of the first tergite especially and scantily on the second and third with some rather short, fine, erect hairs. There is a vertical row of 5 or 6 long, but very slender, pale bristles on the sides of the first tergite; remaining tergites without trace of bristles. The males have seven tergites and males also a little more slender, with nearly parallel sides. In the females there are eight tergites but both the seventh and eighth are quite short, the seventh one-sixth as long as the sixth, slightly turned down, the eighth a little shorter than the seventh, turned ventrally down and in profile barely protruding beyond the seventh. Terminal appendages short, broad and narrow with a very minute, apical protrusion. Male terminalia short and obtuse, protruding beyond the last tergite. The male seventh tergite is extremely short and liplike dorsally, about a twenty-fifth as long as the sixth; the sixth in turn is fully as long as the preceding tergite. The sides of the seventh tergite are more extensive, triangularly produced until it is a fifth the length of the sixth tergite.

Distribution: Oceania: *Despotiscus simmondsi* Bezzi (1928). From Fiji.

Genus *Chymedax* Hull

FIGURES 288, 679, 1274, 1283

Chymedax Hull, Ent. News, vol. 69, p. 99, 1958. Type of genus: *Chymedax delicatulus* Hull. 1958.

Minute, slender, black asilids belonging to the subfamily Laphriinae. Characterized by the presence of only 4 posterior cells and of 7 abdominal segments in males. Marginal cell closed and stalked. Third antennal segment with a small microsegment at apex, more slender than the third segment, and above it, arising from the third segment a small, bristlelike spine. Length 6.5 mm.

Head, lateral aspect: The head is comparatively long, and quite convex anteriorly. Face visible in profile only slightly below. Occiput developed only submedially and only in the middle of the head. Proboscis quite small, short and cylindrical. Palpus reduced to a minute stub with a few, fine, subapical hairs. The antenna is slender and longer than the head, attached at the upper third of the head. The first segment is especially slender, twice as long as the wider, beadlike third segment. Third segment, microsegment included, not quite twice the combined length of the first segments. It is slender throughout and at the apex bears a short, distinct microsegment of more narrow proportions and above it, arising from the third segment, a bristlelike spine.

Head, anterior aspect: The face about a twelfth the head width, with parallel sides. It is micropubescent, but the subepistoma and cheeks are shining; subepistomal fossa linear from encroachment of anterior cheek area. Face without pile and bristles restricted to 2 pairs, one above the other, situated on the lowest part of face and consisting of long, slender elements. Front wider than face, the vertex narrowed and slightly excavated. The ocellarium is comparatively low but has vertical sides and lacks bristles or hairs. Anterior eye facets considerably enlarged.

Thorax: The thorax is short with the mesonotum low. Pile of mesonotum abundant, consisting of undifferentiated, subappressed, fine but stiff, yellowish setae. There is 1 fine, slender, bristly hair on the notopleuron, 1 above the wing, none on postalar callosity or scutellar margin. Prosternum not dissociated. Postmetacoxal area of metasternum with a strong, chitinized arch. Metanotal callosity with a patch of bristles.

Legs: The hind femur moderately elongate and a little swollen on the outer half but with the lower margin plane. Ventrolateral margin with several long, slender, bristly hairs. Posterior tibia with 2 quite long, conspicuous, attenuate bristles laterally. Middle tibia with a long, slender, anterior bristle at the basal third, another at the outer third also with an equally long but stouter ventral bristle located at the middle and again at the basal fourth. Anterior tibia with several long, slender, bristly hairs and all the tibiae with shorter, fine pile. The basitarsi of the front and middle legs have very long, apical bristles and long, posterobasal bristles; hind basitarsus with 2 quite long, anterior bristles, 1 at base, 1 at apex. Claws slender; pulvilli short, but broad and well developed.

Wings: The wings are villose throughout. Marginal cell closed and stalked. Only four posterior cells present, the third wanting. Anal cell closed and stalked.

Abdomen: The abdomen is elongate and slender, the upper surface gently convex. The abdomen is shallowly punctulate, the pile fine and setate; a few, fine bristles are present on the sides of only the first and second tergites. Seven segments are present in the male. The seventh segment is a little less than half the length of the sixth and directed downward at an angle of 45 degrees; it encloses the small male terminalia below, which appear to be rather similar to those of *Atomosia* Macquart.

Distribution: Oceania: *Chymedax delicatulus* Hull (1958). From the Solomon Islands.

Genus *Cenochromyia* Hermann

FIGURES 241, 655, 1328, 1337, 2117

Cenochromyia Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 115, 1912. Type of genus: *Cenochromyia xanthogaster* Hermann, 1912, by original designation.

Rather small flies characterized by the membranous, postcoxal region; yellow or yellow and black coloration with all the pile and bristles pale yellow and the wings often banded. The male terminalia is prominent but not rotate or only slightly so. Tergal bristles are poorly or not at all differentiated. The face varies but is unusually quite narrow and narrowed in the middle. The proboscis is short and more or less cylindrical. The hind claws are characteristically arched and hooklike. Length 8 to 12 mm.

Head, lateral aspect: The face is short, a little more prominent below due to the recession of the eyes but otherwise nearly plane in profile. The eye is distinctly narrowed ventrally and is also strongly anteroventrally recessive, beginning at a level corresponding to the upper third. It is gently convex posteriorly and strongly convex in front. The occiput is a little thickened medially on the middle and lower portion but recedes above, leaving the upper corners of the eye broadly rounded. Pile of occiput abundant, short and stiff ventrally, replaced in the middle and above by stiff, rather short bristles set a considerable distance from the eye margin and with some short, bristly pile lying between them and the eye margin. Behind the vertex on the sloping sides are 3 long, rather conspicuous bristles strongly curved medially at their tips. All pile and bristles of the entire insect in the 2 species before me are yellow, except for a little dark brown pile on the mesonotum and sometimes on the antenna.

Proboscis short, subcylindrical, rather robust or sometimes slender; it extends a short distance beyond the face; the apex is obtusely rounded or truncate ventroapically. Apex of proboscis with some short, stiff hairs continued ventrally; the base below also with a few long hairs. Palpus small, clearly of two segments; the first excavated, with fine, long, ventral hairs, the second stout basally or slender and cylindrical; the basal segment may be rather swollen and bowllike. Second segment with a number of quite stiff, long hairs ventrally and laterally extending almost to the apex.

Antenna attached at the upper fourth of the head; the first two segments are comparatively short, the third segment elongate, wider and laterally compressed, a little narrowed at the immediate apex and slightly tapered towards the base. At its apex it bears a minute unconcealed spine. First segment with several short, stiff, ventral and lateral setae and a pair of long, slender bristles; second segment with an almost complete circlet of 10 to 15 moderately long, sharp setae.

Head, anterior aspect: The face below the antenna is a fourth the head width, narrowed in the middle and divergent below at the epistoma. The front is expanded at the vertex. Subepistomal area comparatively small, slightly, oblique, concave and pubescent. Face pubescent, with 10 to 12 moderately long, bristly hairs on each side of the upper face. On the lower two-fifths of the face is a rather dense mat of moderately long, stout, golden bristles with 5 or 6 long bristles down the sides of the subepistomal margin; or maybe only 2 pairs of epistomal bristles and 2 pairs of longer bristles lying across the lower margin of the face. The mat of somewhat flattened pile is very much shorter and flattened only in some species. The front is short, minutely pubescent with 4 to 6 short, bristly hairs along the eye margin. Vertex moderately excavated but with gently sloping sides; the ocellarium quite large and high, with nearly vertical sides, large ocelli and a pair of quite stout, long bristles between and with 1 or 2 pairs of additional short, slender, bristly hairs. Anterior eye facets greatly flattened medially and enlarged.

Thorax: The thorax everywhere minutely appressed pubescent. Pile of mesonotum abundant, rather long and bristly. Acrostical elements undifferentiated; dorsocentral elements very poorly differentiated even posteriorly; the lateral bristles consist of 1 or 2 notopleural, 2 or 3 supraalar, 2 postalar, and 2 pairs of scutellar. Disc of scutellum only a little thickened and convex, pubescent with 10 to 12 bristly hairs on each side. Propleuron with some stiff, ventral, bristly pile among which are some slender bristles intermixed. Pronotum with a row of 5 or 6 pairs of slender bristles, posteriorly with numerous, long, bristly hairs. Mesopleuron near the middle of the posterior border with 3 exceptionally long, rather stout bristles. Metapleuron with a double, irregular row of 8 to 10 quite long, comparatively stout bristles with some other bristly pile. Lateral slopes of the metanotum with 5 or 6 rather long bristles and some additional pile. Lateral metasternum and ventral metasternum with some comparatively short, fine pile. Postmetacoxal area wide and distinctly membranous, only narrowly encroached laterally; tegula with 3 or 4 setae.

Legs: The femora are comparatively stout, especially the hind pair; the tibiae are also somewhat thickened distally. Dorsal pile is abundant, appressed and setate. The following complement of bristles may be present on the hind femur: 6 or 7 long, bristly, ventromedial hairs, some of the basal elements doubled or with ventral counterparts; 2 or 3 subdorsal, weak, slender, subapical, bristly hairs. The hind tibia has 4 or 5 long, slender, dorsomedial, bristly hairs, and also 3 long, rather stout, dorsolateral bristles and 2 additional bristles near the base, besides 3 or 4 slender ventrolateral bristles and 5 or 6 ventral, bristly hairs. The ventral surface of both hind femur and tibia bears only very scanty, erect, shorter pile. The copious ventral fringe present in related genera is either absent or poorly developed and only on femora. Tibia with a rather well developed brush of setae ventrally on the distal half or third. Middle femur with some long bristly hairs ventrally, especially at the base. Middle tibia of nearly uniform thickness, with 5 comparatively short posterodorsal bristles and 2 exceptionally long anterodorsal bristles which are rather stout, basally tuberculate, distally attenuate, and are as long as the first four tarsal segments together. Posteroventrally are 4 long, slender bristles, 2 ventral, distal bristles, and 1 very long anterior, basal bristle. Anterior femur and tarsus rather similar to the middle ones. The hind tarsus ends in exceptionally arched, hooklike claws, thick apically but sharply pointed, with large pulvilli and long, exceptionally sharply pointed, with large pulvilli and long, exceptionally bladelike empodium swollen at the base.

Wings: The marginal cell closed with a long stalk; the second submarginal cell is long, originating at the end of the discal cell and only moderately expanded distally. The discal cell ends in two veins of equal length. The first posterior cell is widely open, at most slightly narrowed at the margin. Fourth posterior cell closed with a short stalk. Anal cell closed and stalked. Second basal cell ends in three veins, the middle vein short. Alula slightly wider than the costal cell. Ambient vein complete.

Abdomen: The abdomen is as wide as the thorax; sometimes with the second and third tergites very slightly narrowed leaving the fourth and fifth segments a very little wider than the basal ones. Pile abundant, short and suberect. Sides of the first tergite with 5 or 6 slender bristles. Lateral margins often with rather stiff, bristly pile but definite tergal bristles lacking. Males with six tergites. Male terminalia conspicuous, rather elongate. There is a comparatively large, dorsal bulblike epandrium, leaving the true ventral aspect open. Gonopod with a sharp, pointed, downturned subrectangular hook.

Distribution: Australian: *Cenochromyia bipars* Walker (1861); *guttata* Hermann (1912); *tripars* Walker (1861); *xanthogaster* Hermann (1912).

Genus *Atoniomyia* Hermann

Figures 276, 276A–C, 672, 1333, 1342, 2047

Atonia Williston, Psyche, vol. 5, p. 257, 1889. Type of genus: *Atomosia mikii* Williston, 1886. Designated by Williston, 1901. Preoccupied Coleoptera, 1848.

Atoniomyia Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 81, 1912. Change of name.

Quite small, robust flies with strongly punctulate thorax and abdomen. The pile is short and appressed. The terminalia are concealed and recessed, ocellarium with 1 pair of bristles; the third antennal segment is distinct in that it bears a stout, short, apical bristle placed immediately above a moderately long, downturned microsegment. Tibial bristles extremely long. Length 6 or 7 mm.

Head, lateral aspect: The face is only visible in profile on the lower half where it is moderately protuberant and subrectangular; the eye is slightly recessed below, strongly convex anteriorly; posteriorly it is plane over the middle third, but distinctly convex above and below. The occiput is rather tumid, especially towards the medial plane but is completely obliterated on the upper fourth. The occipital pile is moderately long and fine and slightly more abundant below; there are 2 pairs of subdorsal, deeply medial, long, stout, black, spinous bristles located on the occiput. Proboscis small, subcylindrical, the apex rounded off below; the base is distinctly swollen; the apex bears an apical and ventral fringe of pile, the basal half ventrally with numerous, long, fine hairs, the dorsal ridge is thin, transparent and low. The proboscis is directed obliquely downward. Palpus composed of two minute segments, the second especially small, the first subglobular and more or less fused at the base; it appears to be not excavated and the second segment is attenuate and not porate; both segments bear a few, fine, long hairs. Antenna attached to the upper third of the head and moderately elongate; the first segment is slightly swollen and as long or slightly longer than the second, which is beadlike. The third segment is narrow at the base, wider through the middle, and at the apex slightly narrowed. The apex bears a stout, short, bristly, apical spine dorsally and below it ventrally a moderately long, bluntly pointed microsegment. First segment with 1 or 2 weak bristles and other setae below and above, second with 2 moderately long, weak bristles ventrally.

Head, anterior aspect: The face below the antenna is a fourth the head width, with nearly parallel sides; subepistomal region short, horizontal, plane and bare. Face micropubescent with an irregular row of long, fine pile sublaterally on each side, and with a sparse cluster of bristles and stiff pile on the ventral third. There are 4 bristles on each side in a vertical row with pile between and laterally. There are also 3 pairs of equally strong bristles directed downward from the sides of the subepistomal margin. The front is rather strongly divergent and pubescent, with a single row of 6 or 7 long, slender bristles along the eye margin. Vertex deeply excavated with slanting sides; the ocellarium is high and large, with nearly vertical sides; it bears a single pair of long, stout, curved, divergent bristles.

Thorax: The mesonotum with pubescence only on the humerus and in front of the scutellum. Pleuron pubescent, with a bare stripe running down along the posterior margin of the mesopleuron. Pile of mesonotum abundant, golden, flat appressed, somewhat scalelike and setate; and among these setae are numerous, long, fine, stiff suberect hairs which arise from punctures. Humerus with 4 or 5 weak, bristly hairs; notopleuron with 1 long, slender bristle, supraalar region with 1; postalar region with 1; scutellum with 4 pairs of bristles, its surface punctate with curled, flattened setae. Acrostical and dorsocentral elements are not differentiated. Pleuron with fine, scattered hairs, including the pronotum; anterior and upper portions of the mesopleuron with some scattered pile. Upper posterior portion of mesopleuron with 1 to 3 distinct, long bristles. Sternopleuron and posthypopleuron with a few scattered hairs. Pteropleuron apilose; metapleuron with a vertical fanlike fringe of 10 to 12 especially long, backwardly curved, slender bristles. Metanotal slopes with 5 or 6 stout, spinous bristles in each of 2 patches, a dorsal row immediately beneath the squama, also a ventral lower patch. Metanotal slopes with abundant long pile; metasternum with a few minute hairs; postmetacoxal area chitinized, with seam; tegula pubescent only; squama with sparse fringe in several rows. Prosternum not dissociated.

Legs: The femora are relatively slender; the hind femur is very slightly thickened before the apex. This femur bears short, appressed pile dorsally, a subapical and apical pair of weak, bristly hairs dorsally, with a third pair at the outer fifth; there are a few, long, slender hairs laterally and a ventral fringe of 3 quite long, slender hairs and 4 other shorter hairs in addition to the short, scanty, ventral fringe. This tibia bears very slender bristles or bristly hairs as follows: 5 or 6 dorsal; 2 exceptionally long, stout, apically fine dorsolateral; 1 additional element laterally and basally, and 3 or 4 long, slender, curved ventral bristles. Ventrally this tibia has a characteristically dense, erect, rather long fringe; apical bristles slender and reduced. Middle femur with a single anterior bristle at the apical fourth and a posteroventral fringe of scattered long hairs; its tibia bears anteriorly a slender, basal bristle, 2 pairs of excessively long, basally stout, apically fine, oblique bristles. These bristles are three-fourths as long as the entire tibia: it also bears dorsally 5 or 6 fine, shorter bristles, and posteroventrally 3 excessively long bristles. Ventral fringe short and suberect. Anterior femur with fringe of 7 or 8 long hairs ventrally and a few long hairs posteriorly; anterior tibia with 5 or 6 slender, short dorsal, 4 or 5 long, posterior, a like number of long posteroventral and 3 or 4 long, ventral bristles increasing in length apically. Apical circlet with 12 bristles. On both the middle and anterior tarsi the first two segments bear exceedingly long, stout bristles, nearly equal in length to the first three segments; tarsi end in well developed pulvilli, empodium, and sharp claws.

Wings: The marginal cell closed with a long stalk; the anterior branch of the third vein ends barely above the apex, the posterior branch well behind. Second posterior cell widely open or slightly narrowed; fourth posterior cell closed and stalked and ending beyond the discal cell; the discal cell therefore has one end vein. Anal cell closed; second basal cell closed with three veins; alula narrow, ambient vein ends at the end of the second posterior cell.

Abdomen: The abdomen is as wide as the mesonotum and with nearly parallel sides; the tergites are slightly convex, coarsely and thickly punctulate; the first segment is unswollen laterally. Pile of abdomen short, appressed setate, a little longer along the lateral margins, the sternites with short appressed pile; weak bristles are present on most of the tergites, the first tergite bears 3 pairs of bristles, relatively stout; the second has a single, stout bristle in the middle of the lateral margin; remaining tergites with only stiff hairs. Male terminalia similar in general plan to *Atomosia* Macquart. The encircling arms of the gonopod turn sharply backward to form an adjacent pair of toothlike structures. Female terminalia very short and minute and recessed in the cuplike sixth tergite, the seventh tergite forming a linear rim at the apex of the sixth; they have a medial dorsal fissure.

Distribution: Nearctic: *Atoniomyia duncani* Wilcox (1937).

Neotropical: *Atoniomyia albiceps* Hermann (1912); *ancylocera* Schiner (1868); *bigoti* Bellardi (1861); *brevistylata* Williston (1901); *fulvipes* Carrera (1946); *grossa* Carrera (1946); *hispidella* Hermann (1912); *laterepunctata* Hermann (1912); *mikii* Williston (1886); *mollis* Hermann (1912); *pinguis* Hermann (1912); *scalarata* Hermann (1912); *setigera* Hermann (1912); *viduata* Wiedemann (1819).

Genus *Dissmeryngodes* Hermann

FIGURES 260, 659, 1330, 1339, 1571, 2125

Dissmeryngodes Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 75, 1912. Type of genus: *Laphria antica* Wiedemann, 1828, by original designation.

Rather small flies; the abdomen tends to be somewhat elongate, thickened posteriorly, due to the sides being downturned. They will be rather easily recognized by the quite narrow face, the small, short, cylindrical proboscis, the long, slender antenna which carries a conspicuous apical microsegment and above the point of its attachment a bristly spine. Finally, the end vein of the discal cell and the fourth posterior cell are nearly or quite aligned; and especially should be noted the somewhat thickened, hind femur which bears 4 ventrolateral, distal, stout, tuberculate spines. Length 9 to 11 mm.

Head, lateral aspect: The face is plane with the eye margin, slightly produced on the lower fourth, due only to the gentle recession of the eye. The eye is high, distinctly narrowed below. The eyes rather strongly flattened medially in front. Occiput moderately developed, but on the whole rather short; it is obliterated dorsally and recedes also ventrally but closer to the bottom of the eye. Pile of the occiput rather fine and short, the bristles begin above the middle of the head, where there are 1 or 2 slender, pale bristles followed by 6 or 7 dorsal pairs of straight, exceptionally stout, strongly attenuate, and pointed, and conspicuous bristles. The deeply placed medial pair cross each other. Proboscis small, short, subcylindrical, a little swollen on the basal half and directed obliquely downward in some specimens and, in others horizontally forward; the latter seems to be the characteristic position. The proboscis is no longer than the face, truncate apically with a short, bristly, quite apical fringe and 4 or 5 bristly hairs ventrally at the base. Palpus minute, short, cylindrical with apical bristle.

Antenna attached at the upper fourth of the head, rather long and comparatively slender; the third segment is sometimes rather widened and rather strongly compressed laterally; in other cases it is more narrow and progressively narrowed towards the apex. This segment is 2½ times the combined length of the first two segments and in any case bears a conspicuous, long, pubescent, ventromedial microsegment; and attached to the third segment dorsally at the base of the microsegment is a bristly, basally swollen spine; the microsegment is a seventh the length of the third segment. First antennal segment with abundant, bristly setae ventrally and in the middle below with a single, long, stout bristle; second segment with 1 or 2 rather long, slender bristles dorsally, 1 or 2 short, bristly setae and 7 or 8 ventrally. Third segment very slightly concave at the base dorsally.

Head, anterior aspect: The head is only a little wider than high. The antenna is only a sixth the head width or less and at the epistoma scarcely wider. Subepistomal area small, bare, nearly plane, slightly oblique. The face is micropubescent, with 3 or 4 long, slender, bristly hairs on the dorsal half, often pale, strongly curled downward and with some shorter, fine pile. Lateral subepistomal margin with 1 to 3 pairs of long, slender bristles. Front quite short, with 2 slender bristles along the eye margin; the vertex is deeply excavated, with sloping sides, the upper corners but little excavated; the ocellarium is rather large, high, with steep sides, narrow at the top and steep behind; it bears a pair of long, moderately stout bristles and a pair of minute, hairs behind. Anterior eye facets strongly enlarged.

Thorax: The pleuron appressed pubescent, except over the greater dorsal middle portion of the mesopleuron. Mesonotum and humerus bare, except narrowly along the margin. Pile of mesonotum rather scanty but bristly and appressed or suberect; it is nearly erect along the anterior margin. Acrostical and dorsocentral elements not differentiated anteriorly; the latter are very short and fine and laterally divergent behind the suture. Humerus with rather long, abundant, fine, erect pile. The following complement of long and exceptionally stout bristles present laterally: 1 notopleural, 1 supraalar, 1 postalar, and 1 pair of still stouter, scutellar bristles. Scutellum very slightly convex, large, shining, wrinkled; disc apilose and distinctly impressed rim. The spinous bristles are set rather close together, thick but sharp only at apex. Propleuron below with a tuft of pile and on the pronotum is a band of stiff pile only; longer, similar pile on the lateral pronotum. Anterior sternopleuron with a tuft of fine hairs; 1 or 2 fine hairs on the upper sternopleuron; upper corner of the mesopleuron with 1 conspicuous, long, stout bristle and 1 more slender bristle. Pteropleuron apilose but posthypopleuron with 3 long, bristly hairs and a vertical row of shorter pile; the metapleuron has a single row of 7 extremely long, slender bristles, the upper ones black, all of them curved downward on the outer portion. Lateral metanotum with a patch of slender bristles and bristly pile. The postmetacoxal region forms a large, long, chitinized arch; beyond it lies the chitinized, isolated, ventral metasternum with a few, long, scanty hairs and also a pair of characteristic, long, basal, bristly hairs.

Legs: Anterior and middle femora comparatively slender; the hind femur is distinctly thickened, beginning near the base, a very little greater beyond the middle and shared by both dorsal and ventral portions; its ventral surface has a dense ventromedial band of long, erect, fine pile. Hind tibia with similar pile on the outer half, giving way only at the apex to appressed pile. The first three segments of the tarsi with ranked brushes of setae; hind tibia a little thickened distally; the bristles are unusually long and stout on the middle tibia and perhaps no shorter but more slender on the anterior tibia. All are basally stout, distally attenuate and oblique. On the hind femur there are 4 or 5 ventrolateral, short, grossly tuberculate spines; ventromedially on this femur are 2 or 3 long, pale, basal bristles. Hind tibia with 1 or 2 very slender, dorsomedial bristles, the longest and best developed is near the subapical position. There are 2 long, well developed anterodorsal bristles; ventral surface with 2 or 3 long, slender bristles or bristly hairs on the outer half; the middle femur has a stout, anterior bristle at the outer third, a weak shorter element at the basal third and a stout, short anterodorsal bristle. The ventral margin bears a conspicuous posteroventral fringe of 5 long, slender, pale bristles and a few other, short, anteroventral, bristly hairs. On this tibia the strong bristles are ventral and anterodorsal; there are 5 of the anterodorsal bristles, some of them more than half as long as the tibia, and 5 equally long ventral bristles, if one at the apex is included; the one near the base is fully two-thirds if not three-fourths as long as the tibia.

Anterior femur with a short bristle anterodorsally near the base, another near the apex with 3 posterodorsal bristles. This tibia has 5 rather short, slender, anterodorsal, bristly hairs; 3 or 4 longer, posterior, slender bristles or bristly hairs, 4 quite long, posteroventral bristles and 2 or 3 similar, ventral bristles. Tarsi end in sharp claws strongly bent at the apex, well developed pulvilli, and a curved, bladelike, long empodium.

Wings: The wings are broad, the marginal cell is closed with a comparatively long stalk; the anterior branch of the third vein ends almost at the wing apex; the posterior branch ends some distance to the rear; first posterior cell widely open, but very slightly narrowed; end vein of the discal cell and the fourth posterior cell in almost complete alignment; the anterior crossvein enters the discal cell shortly before the middle. Anal vein closed with a rather long stalk; second basal cell ends with 3 veins, the middle vein quite short, a thyridium above; alula as wide as the costal cell above it; ambient vein complete, the fringe of the villi is long.

Abdomen: The abdomen is comparatively elongate, with a slight tendency to be narrowed through the middle; the surface is not punctate or so minutely punctate as to scarcely justify this term. Pile of the abdomen scanty, quite fine and suberect; sides of first tergite with 3 distinct bristles and some shorter pile. Sides of the remaining tergites in the middle on the lateral margin with a distinct, rather stout bristle, absent on the sixth, doubled on the second. Punctation more conspicuous on the female. Seven tergites present in the male, the seventh two-thirds as long as the sixth; 7 also in the female with the seventh at most one-fourth as long as the sixth. The male terminalia are quite short, weak, with a narrow, laterally visible and protrusive process. Female terminalia still smaller and consisting of a short, conical protrusion.

Distribution: Neotropical: *Dissmeryngodes antica* Wiedemann (1828); *dispar* Walker (1855).

Genus *Centrolaphria* Enderlein

Centrolaphria Enderlein, Zool. Anzeiger, vol. 44, p. 241, 1914.
Type of genus: *Centrolaphria columbiana* Enderlein, 1914, by original designation.

The following is Enderlein's description in translation:

> Male. The thickened hind femur bears below both on the outside and inside a series of some strong, tuberculate spines (Dornen), four on each side. Abdomen very slender, the second and third segments somewhat smaller or reduced in size; the fourth to last segments form a weak club. Apex of abdomen formed as a half circle and bent downward. *Centrolaphria columbiana* has much similarity to *Laphria transatlantica* Schiner, 1868, from South America but from the description of that species it cannot be determined with certainty if it belongs to this genus.

Distribution: Neotropical: *Centrolaphria columbiana* Enderlein (1914).

Centrolaphria is possibly similar to *Dissmeryngodes* Hermann.

Genus *Adelodus* Hermann

Figures 254, 676, 1254, 1263, 1810

Adelodus Hermann, Nova Acta Acad. Caes, Leop.-Carol., vol. 96, p. 124, 1912. Type of genus: *Adelodus rufipes* Hermann, 1912, by original designation.

Flies with short, broad head, and very short, nearly plane face only slightly more extensive below, due to the eye recession; proboscis short, cylindrical and truncate. Vertex wider than front or face and deeply excavated; from behind it is flared and excavated; the ocellar protuberance is small but high with a pair of quite long bristles. Third antennal segment elongate, narrowed at base and apex and without incision or spine. Pile of mesonotum rather dense, curled and appressed setate with a few longer hairs; mesopleuron with 2 bristles. Scutellum with a fanlike row of 10 or 12 long, slender, marginal bristles. All femora stout and somewhat swollen. Ventral and lateral bristles of hind femur tuberculate. Prosternum not dissociated. Postmetacoxal area with a long, stout arch of chitin. Abdomen rather elongate with the posterior corners rounded and imbricate, giving a marked corrugate appearance. First five tergites each with 1 long, stout, lateral, pale bristle and each with about 10 long, pale, bristly hairs. Male terminalia fully rotate, with a conspicuous, convex, oval, epandrial bulb placed in a ventral position, which bears at the apex a median, doubly hooked process. Gonopod well developed, convex and short with apical process. Length 10 to 15 mm.

Head, lateral aspect: The face is short, the upper part of the face is not visible in profile; the lower part is slightly produced and gently rounded. The occiput is plane and vertical to the lower third, then slanting forward and recessive below. It bears scattered, long hairs and 4 stout bristles dorsally. The proboscis is cylindrical, quite short though rather stout; the apex is obtusely rounded and pilose and the whole structure extended obliquely forward. Palpus minute, short and cylindrical with long bristles including the apex. The first antennal segment is nearly twice as long as the second, with a pair of quite long, stout, black bristles in the middle below and the second segment bears some short bristles at the apex above and below. The third segment increases slightly in width near the base and is then of constant width to the outer fifth, where it is gradually and slightly narrowed, leaving the apex blunt and bearing a short, minute, spurlike subsection which in turn bears a minute spine. It also has dorsally, near the middle and slightly laterally, a small incision and spine.

Head, anterior aspect: The head is wide and anteriorly flattened, the anteromedial facets enlarged. The face is relatively narrow, densely golden micropubescent or pollinose and less than a fifth the total head width. It bears dense, strongly flattened hairs which are pale yellow and cover the entire width; these hairs, of varying lengths, are mostly rather long and are directed obliquely downward; upper portion of face with a few short and 4 long, pale yellow not flattened hairs. On the extreme lower portion of the face the sides each have 4 long, black, bristly hairs next to the eye margin. Face slightly divergent below. The vertex is deeply excavated and divergent, the ocellar protuberance moderately high with vertical sides and 2 quite long, stout, black, divergent, posteriorly directed bristles; behind these lies a pair of minute, anteriorly directed bristles.

Thorax: The thorax is densely, short, flat appressed, reddish pilose; the humerus is quite flattened and emarginate. There are long, black, lateral bristles consisting of 1 notopleural, 3 supraalar, 1 postalar, and 4 pairs of scutellar. Mesopleuron with 1 stout and 1 slender bristle; hypopleuron with several, long, slender hairs; metapleuron with a radiating fan of long, delicate, black hairs bent downward near apex. Metanotal slopes with numerous, long hairs. Lateral metasternum pilose; postmetacoxal area strongly chitinized. Prosternum not dissociated.

Legs: All the femora are thickened; the hind femur is strongly accentuated beyond the middle. The anterior four femora are widest at the middle. Hind femur bare, with on the outer two-fifths a double dorsal row of black bristles consisting of 4 lateral, 3 medial bristles. The lateral bristles are stout and microtuberculate. There are 4 microtuberculate ventral bristles confined to the basal half. Lower surface with some long, fine, erect pile; hind tibia with a band of long, fine, abundant, pale pile changing at the apex to matted, stiff, reddish, flat appressed pile. Long black bristles are present as follows: a cluster of 3 lateral, at the basal third, slightly oblique and straight; 2 dorsal bristles before the basal half, curved and subappressed. Middle femur with 1 dorsal at the outer third, 1 anterior just below it and another, yellow, just proximal, and 3 very slender, posterodorsal bristles close to apex. Middle tibia with an anterodorsal and an anteroventral row of 3 or 4 very long bristles and some pale, ventral bristles. Middle basitarsus with extremely long bristles anteriorly and posteriorly and 1 basal posterior bristle; these long apical bristles are continued on to the second segment. Anterior femur with 2 or 3 dorsal bristles on the outer third; the anterior tibia has a double row of 8 to 10 moderately long, dorsal bristles which are fine and weak; it also has a double row of long, oblique, straight, anteroventral and posteroventral bristles, 6 posterior and 4 anterior elements. First two segments of anterior tarsus with extraordinarily long apical bristles. Claws long, sharply turned down at apex; pulvilli nearly as long as claw; empodium nearly as long as claw, slender and stoutly swollen at immediate base.

Wings: The marginal cell is closed with a long stalk; veins closing fourth posterior and discal cells confluent and aligned; the fourth posterior cell is closed with a stalk. Anal cell closed with a long stalk; the second basal cell ends with three veins. Alula rather narrow; ambient vein ends at or just beyond end of the anal vein.

Abdomen: The abdomen at the base is nearly as wide as the thorax and begins to narrow slightly at the base of the second tergite. Sides of first tergite with a vertical row of 3 or 4 moderately long, stout, pale bristles. Middle of the sides of all remaining tergites with long, pale, backwardly directed bristles and additional, fine pile. Abdomen densely covered with fine, micropunctures and with blue to purple reflections. There are seven tergites only in the male, the seventh moderately well developed, rounded or narrowed apically. The male terminalia large and conspicuous, fully rotate. The epandrium forms a short, oval but remarkably convex bulb with, on each side posteriorly, a moderately long, attenuate, convergent process; these processes come to lie side by side but separated by a short distance. The gonopod laterally is almost as convex, but much shorter and abuts against the end of the seventh tergite. Gonopod very tightly enclosed by epandrium but not fused and bears a terminal process with a flange or knob at apex. Aedeagus extends as far as the other processes and has a dorsal and ventral hook at apex. The hypandrium is present but short. No females seen.

Distribution: Australian: *Adelodus nigro-coeruleus* Hermann (1912); *rufipes* Hermann (1912).

Bromotheres, new genus

Figures 255, 680, 1332, 1341, 1813, 2109

Type of genus: *Atomosia australis* Ricardo, 1913.

Characterized by the presence of scattered pile over the whole of the face; the dorsal incision on the third antennal segment; the presence of a long pair of stout, ocellar bristles and a single, long, stout, ventral bristle on the first antennal segment. There is short, appressed, thoracic pile in both sexes; the punctulate abdomen bears stout, conspicuous bristles on the sides of the tergites. Male terminalia moderately conspicuous and not concealed. Related to *Adelodus* Hermann and distinguished by the closed male terminalia and the end of the discal cell, which is not aligned with the end vein of the fourth posterior cell, and the absence of the long, scalelike components found in the mystax of *Adelodus*. In addition, in *Adelodus* the hind femur is strongly swollen and it and the tibia lack the dense fringe of erect pile. Length 8 mm.

Head, lateral aspect: The face is almost plane with the eye margin on the upper half but moderately prominent and gently receding below. The eye is distinctly narrower on the ventral half and slightly recessive anteroventrally on the posterior ventral fourth. The occiput is narrow, scarcely visible through the middle of the posterior profile, obliterated on the upper third and moderately prominent below. Occipital pile short and very scanty in the middle, abundant and long below, with 3 pairs of exceptionally stout, rather long bristles behind the upper corners of the eyes and a single, weaker, laterally directed bristle placed medially at the upper third of the head. Proboscis small, obliquely directed downward, cylindrical and swollen towards the base, especially from the dorsal aspect. The apex is obtuse and carries a few, stiff hairs. The base below has 5 or 6 long hairs. Palpus quite small and cylindrical, of 1 segment, with a second, short, fused segment. The antenna is attached above the upper third of the head. The first segment is 1½ times as long as the second; both the first and second segments are slightly compressed, the third more strongly compressed. The third segment is twice as long as the combined length of the first two, a little wider in the middle and gently tapering towards base and apex; the dorsal surface in the middle sublaterally has a distinct excision bearing a pale, short spine. First segment with 1 or 2 minute setae dorsally, 2 or 3 short setae ventrally, and a long, stout, ventral, sharp bristle fully as long as the combined length of the first 2 segments. Second segment with 2 or 3 short setae below; apex of third bluntly rounded.

Head, anterior aspect: The head is not wide. The face below the antenna is one-fourth of head width and narrowed in the middle but widening below. Subepistomal area rather small and short, nearly horizontal, slightly concave and bare. The face is pubescent with on the upper half 8 to 10 short, bristly hairs and 2 to 4 additional, longer, bristly hairs; and on the lower fifth transversely above the epistoma a rather dense band of long, oblique, distinctly and widely flattened hairs which are present in both sexes. Pile and pubescence in both sexes pale, brassy yellow; the male has 3 pairs of widely separated, long, yellow bristles on the lateral margins of the subepistomal region. Female with 4 pairs of bristles similarly placed and a little longer, a little stouter and black. The fourth and lowest bristle is quite short and delicate. Front distinctly divergent, the vertex of the same width as the upper front, the sides bear only a few relatively weak, bristly hairs. In the female there is a single slender, very weak bristle. Vertex deeply excavated with oblique, sloping sides; the ocellarium is large and high with nearly vertical sides bearing a pair of long, stout, divergent bristles and posteriorly a few, minute setae. Anterior eye facets enlarged.

Thorax: The mesonotum is bare and shining; the pleuron is mostly fine pollinose, with an enlarged bare spot on the mesopleuron. The pile of mesonotum in both sexes is quite short, flat appressed, curled setate. Acrostical and dorsocentral elements are not differentiated. Humerus setate. The lateral bristles are stout and consist of 1 short, slender notopleural and 2 moderately long, stout, supraalar bristles; 1 similar postalar; and the scutellar margin with 2 or 3 slender, bristly hairs. Propleuron with fine, long pile. Pronotum with 1 or 2 pairs of weak, pale bristles. Upper mesopleuron with short pile and 1 bristle; upper hypopleuron with 5 or 6 quite fine, long hairs. Lower posterior sternopleuron with 4 or 5 short, stiff hairs. Metapleuron with fine, long, fanlike, very slender hairs. Metanotal slopes with 3 or 4 stiff, short bristles; 1 pair is especially stout and longer. Metasternal slopes with pile. Metasternum with 1 or 2 long hairs; postmetacoxal region chitinized, without medial seam. Tegula pubescent only; squama with a fringe of pile in 1 row. Prosternum not dissociated.

Legs: All the femora are slightly thickened; the hind femur is a little more slender basally and slightly more swollen distally in the male. This femur in the male bears 1 dorsomedial apical and 1 subapical, similar dorsolateral bristles, 2 stout, lateral elements at the middle and just beyond, 1 weak bristle at the basal fourth, 1 stout, ventrolateral at the basal third, and 1 weak bristle at the basal fifth. Ventral surface with a copious fringe of erect, fairly long, simple pile on the outer three-fifths and toward the base with 2 quite long, stout, erect, pale bristles. The hind tibia bears short setate pile above like the femur and a similar long, erect, dense, ventral fringe changing to setae only quite at the apex; it also bears 1 short, stout dorsolateral bristle at the basal third, and at the outer third 1 extremely long, stout, oblique, dorsolateral bristle which is nearly as long as the combined length of the first two tarsal segments; laterally are 2 stout bristles near the basal third and 1 shortly beyond this point; the subapex has 1 dorsal, 1 lateral, and 5 ventral bristles. Middle femur with 1 stout bristle anteriorly at the distal third, 1 weak bristle at the apex on each side subdorsally. Its tibia bears 2 long, strong, and 2 short, weak anterodorsal bristles; including the apex there are 3 short dorsal, 3 or 4 fine, posterior, and 2 long, oblique ventral bristles. Anterior femur with 2 short bristles anterodorsally near the apex, its tibia has 2 moderately long dorsal, 3 long, basally stout, oblique posteroventral, and 2 similar ventral bristles. The anterior apical bristles of the first two segments of the anterior tarsi are exceptionally long and stout, nearly as long as the first three tarsal segments. Tarsi end in well developed pulvilli, empodium, and sharp claws.

Wings: The marginal cell closed with a long stalk; the anterior branch of the third vein is sinuous, ending well above the apex and strongly arched at the base. First posterior cell widely open, the fourth posterior cell closed with a long stalk; lower end vein of discal cell drawn backward and nearly as long as the upper vein. Anal cell closed with a short stalk; second basal cell ends with 3 veins, the middle vein short. Alula short with rounded margin posteriorly; the ambient vein is well developed to the end of the anal cell.

Abdomen: The abdomen is slightly wider than the mesonotum, posteriorly as wide as the thorax; the tergites are moderately convex, strongly punctulate where the thorax is only granulate, or weakly punctulate. Pile of abdomen microscopically short, appressed and setate, slightly longer and erect along the lateral margin. Stout tergal bristles present and conspicuous on all the segments: 3 pairs on first tergite, 1 near the middle of the lateral margin on second to fifth tergites, and 2 postmarginally on tergites 6 and 7. Seven tergites in the male and the female, the seventh is more than half as long as the sixth. Male terminalia moderately conspicuous, bulbous and swollen ventrally, half rotate but only protruding shortly beyond the apex of the seventh tergite, the parts themselves being small. Female terminalia completely and deeply recessed within the shallow, cuplike seventh tergite.

Distribution: Australian: *Bromotheres australis* Ricardo (1913); *culicivora* White (1917).

Subfamily Megapodinae

The group of curious flies to which *Megapoda* Macquart and its allies belong is regarded as a subfamily. All the members of the group are distinguished by the closed marginal cell, except *Senobasis* Macquart, and by the strongly developed and elongate protuberance on the anterior tibia, to which is attached a stout spine with accompanying, extensive flange on the basitarsus. Moreover, they are characterized by the exceptionally elongate proboscis and the long, one-segmented palpus. The palpus reminds one of the type of palpus found in *Phellus* Walker and its allies, except that in those genera there are two segments. The third antennal segment is stout and at its apex bears a prominent pit with a spine that is usually visible. These flies have a slow, lumbering flight and elongate legs; they tend to have a drooping head and abdomen and usually hang themselves from stems and leaves of rank grass and vegetation.

In the female the ovipositor is formed by a broad, triangular, platelike, convex, eighth tergite and an incompletely divided ninth tergite without any spines. Apposed to this structure below are the corresponding sternites. The entire structure forms a shovellike, semitubular apparatus. In the males the terminalia are large, bulblike, extended chiefly posteriorward with the ninth tergite forming a broad, convex, elongate, undivided, shovellike structure, free but tightly fitting against the large, lateral processes to which it is not fused. The eighth tergite is very short, nearly concealed and the terminalia are rotate 180 degrees. Although *Senobasis* Macquart differs rather strongly in appearance from the other members of the group, it agrees in the long, tibial process, the type of proboscis and the quite similar palpus and antenna. The venation, except for the open marginal cell, is similar. This genus is the largest within the group in number of species.

These flies are entirely confined to the Neotropical region, ranging as far north as the valley of Tepotzlán immediately south of Mexico City, where I have observed the flies of *Pseudoryclus Carrera.* They extend southward to northern Chile.

Pronomopsis Hermann is found in the Andean regions at high altitudes, and in northern Chile, Bolivia and Peru. *Senobasis* Macquart has a wide distribution in South America. *Pseudoryclus* Carrera ranges from Peru and the Amazon basin to Mexico. *Megapoda* Macquart comes from the forested Atlantic region south of Matto Grosso and west of Amazonas state. *Pseudorus* Walker is limited to the equatorial region and *Doryclus* Jaennicke is found in almost the whole of the Neotropical region.

KEY TO GENERA OF MEGAPODINAE

1. Marginal cell open; male ninth tergite with a pair of apical processes; lateral process forceps-like. Female terminalia short. Face plane; its height reduced, lower part extended forward. Fourth posterior cell closed and stalked.
SENOBASIS Macquart

Marginal cell closed and petiolate 2

2. Face moderately produced, concave or at least with a supraepistomal lip or ridge; face apilose and mystax confined to a few epistomal bristles; occiput largely or wholly reduced by posterior development of eye; fourth posterior cell closed or open 3

Face strongly produced, slightly convex, and forming a sharp, overhanging beak or hood above epistoma; more than ventral half of face densely covered with bristly pile; lateral occiput strongly developed and prominent above and below; fourth posterior cell closed with a long stalk.
PRONOMOPSIS Hermann

3. Face strongly concave beneath antenna; its height reduced; third antennal segment large, thick, greatly expanded dorsally and ventrally; fourth posterior cell narrowly open or closed with a short petiole 4

Face without concavity, supraepistomal margin transversely ridged. Third antennal segment elongate, 2 or 3 times as long as wide. Legs elongate; femora and tibiae long, especially posterior pair. Large, elongate, often blue-black flies; fourth posterior cell closed with a long petiole.
MEGAPODA Macquart

4. Mesonotum strongly humped and swollen and projecting anteriorly; sometimes overlapping head. Posterior tibia and tarsus not dilated . . . . PSEUDORUS Walker

Mesonotum normal. Flies with drooping head and abdomen 5

5. Apical part of posterior tibia and posterior basitarsus thickended and clothed with bristly pile or setae.
DORYCLUS Jaennicke

Posterior tibia and basitarsus not swollen; pile normal.
PSEUDORYCLUS Carrera

Genus *Senobasis* Macquart

FIGURES 245, 675, 1276, 1286, 2107, 2131, 2165

Senobasis Macquart, Diptères exotiques, vol. 1, pt. 2, p. 52, 1838. Type of genus: *Senobasis analis* Macquart, 1838. Designated by Bromley, 1934, the first of two species.

Stenobasis Agassiz, Nomenclator zoologicus . . ., Index, p. 338, 1846. Emendation.

Astylium Rondani, Nuovi Annali Sci. Nat. Inst. Bologna, ser. 3, vol. 2, p. 185, 1850. Type of genus: *Astylium claviger* Rondani, 1850, by montypy.

Lochites Schiner, Verh. zool.-bot. Ges. Wien, vol. 16, p. 671, 1866. Type of genus: *Dasypogon ornatus* Wiedemann, 1819, by original designation. Preoccupied Hymenoptera, 1857, and Aves, 1859.

Astylum Kertész, Catalogus dipterorum . . ., vol. 4, p. 83, 1909. Emendation.

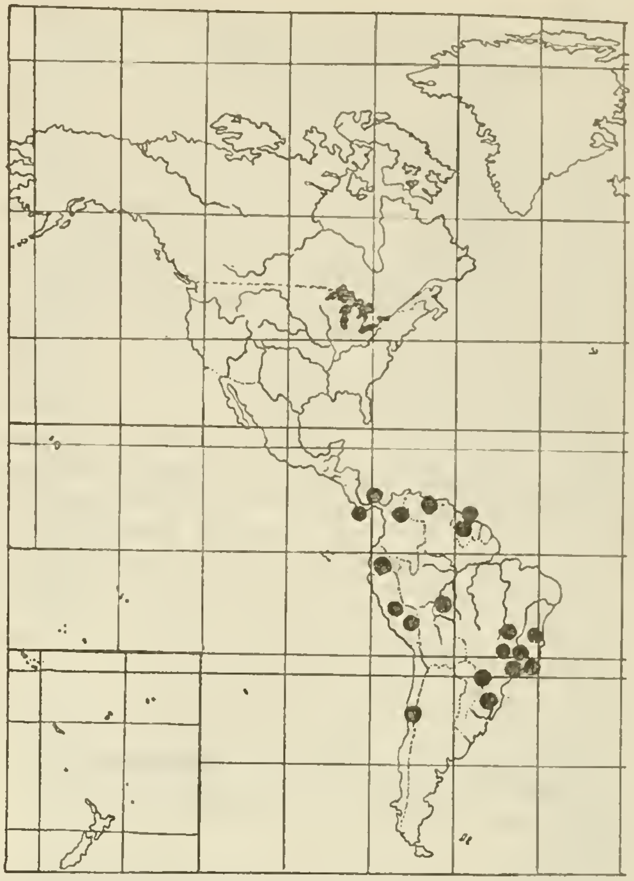
Stenobasis Kertész, Catalogus dipterorum . . ., vol. 4, p. 123, 1909. Emendation.

Lochitomyia Brèthes, Rev. Chilena Hist. Nat., Santiago, vol. 28, p. 105, 1925. Unnecessary change of name.

Large flies which can be readily identified from the clavate antenna, the very prominent protibial spur and spine, and the basitarsal flange, associated at the same time with a 1-segmented palpus and the open marginal cell. It is a distinctive Neotropical genus, with elongate, sometimes slightly clavate abdomen. Length 15 to 25 mm.

Head, lateral aspect: The head is comparatively short, the face short above, becoming gradually longer below; the occiput is scarcely visible in profile and only over the middle and lower portion. The lateral occipital margin is slightly concave, and the pile begins well away from the eye margin and covers the entire remainder and consists of numerous, long, slender, bristly hairs. At the upper eye corners and behind the occiput on each side are 1 or 2 slender bristles. The proboscis is elongate, laterally compressed, bluntly pointed, with a prominent, dorsal carina arising abruptly at the basal fourth and continuing beyond the middle. Basal half below with a few fine, long, coarse hairs. Palpus prominent, elongate, subsigmoid, cylindrical, composed of 1 segment and perhaps with a trace of a basal segment; it bears on all sides, except medially on the basal half, numerous, long, bristly hairs which become stouter at the apex. The antenna attached at the upper third of the head and approximately as long as the head; the first and second segments are stout and subequal, and together not quite as long as the third. They bear a few, long, stout bristles ventrally and 1 or 2 dorsally on the second segment and both with some shorter bristly hairs. The third segment is strongly attenuate on the basal half, clubbed apically, with an apical pit and more or less concealed spine.

Head, anterior aspect: The head is wide and flattened anteriorly with greatly enlarged facets; the face at antenna is about a fifth the head width, its sides nearly parallel; the face cover consists of pubescence with fine, scanty, scattered, long, bristly hairs more or less confined to the lower half, and with 2 or 3 pairs of long, quite stout bristles above the epistoma and concentrated near the middle. The lower face tends to be a little compressed and slightly beaklike. Subepistomal area large, conspicuous, polished, and oblique. The front is flattened and pollinose, with on the middle of each half a tuft of long, bristly hairs. Upper front slightly divergent; the vertex is slightly convergent, the vertex moderately excavated; the ocellarium is low and broad with 3 or 4 pairs of short, weak bristles behind the ocelli.



TEXT-FIGURE 28.—Pattern of distribution of the genus *Senobasis* Macquart.

Thorax: The thorax is long and rather low but with the anterior edge high and abrupt. Mesonotum dull, with lateral and vittate pollinose areas and broadly bare over the middle, except for a patch of scattered, bristly pile medial to the humerus and continued as a row of slender, dorsocentral bristles the entire length of the thorax, each row sometimes doubled posteriorly. Acrostical elements appear to be absent. Humerus with bristly pile. The lateral complement of stout bristles consists of 1 notopleural, 2 or 3 supraalar, 2 postalar, and no scutellar bristles. Scutellum thick, flattened, pollinose, generally apilose. The whole pleuron is pollinose, with fine, abundant pile on the propleuron, a few scattered hairs on the posterior mesopleuron, upper sternopleuron, more numerous on the hypopleuron and the metapleuron with a scattered vertical band of long, slender, bristly hairs. Metasternum laterally and ventrally with abundant, long pile. Postmetacoxal area membranous. Prosternum fully dissociated.

Legs: The legs are comparatively slender, the hind femur and tibia are lengthened, the pile reduced to a few, fine, scanty hairs and bristles rather reduced in number but stout and sharp. The hind femur has 4 or 5 lateral bristles, 3 prominent, medial bristles in the middle, and the apex has 1 lateral and 1 dorsal pair. Hind tibia enlarged at apex with 1 stout, dorsal, basal bristle and 2 or 3 weak bristles beyond, and with 2 to 3 stout, lateral and 2 similar ventral bristles. Middle femur with anteriorly and posteriorly 3 or 4 short but stout bristles which may be increased to 5 to 7 in females. Ventral surface of males with scattered fringe of long hairs basally and females with 1 stout basal bristle. Anterior femur with 2 or 3 short, anterior and a like number of posterior bristles in females, and the number apt to be reduced in males to 1 on either side near the apex. Middle tibia with 2 or 3 long, stout bristles anteriorly, 1 or 2 anteroventrally, 1 ventrally at the apex, 2 posterodorsal and 7 or 8 short, posterior bristles; all are stout and spinelike. Anterior tibial bristles quite short, with 3 to 5 in each row; they are longer in females. Protibial apex with 1 long, stout protuberance medially beset with bristles and carrying a stout, curved, clawlike spine. Basitarsus with a prominent basal flange. Claws comparatively sharp, strongly bent at the apex; pulvilli large; empodium bladelike.

Wings: The wings are elongate, the marginal cell open but not widely. The fourth posterior cell closed with short stalk, the anal cell likewise. The alula is quite large; ambient vein complete.

Abdomen: The abdomen is elongate, a little shorter than the wings, subcylindrical, not quite as broad as the mesonotum, and in males slightly clavate, due largely to the wide and prominent terminalia. The abdomen is often pollinose, sometimes pale in part. The dorsal pile consists of fine, scattered setae, the lateral pile of long, fine hairs. Only the first tergite has bristles which consist usually of 3 stout, lateral elements. Males with 7 tergites, females with 8, the latter depressed from the seventh but otherwise prominent. Male terminalia enlarged and fully rotate, the epandrium is broad, conspicuous, uncleft, but often with a long, fingerlike, distal protrusion. It appears to be fused laterally with the rather large, broad, triangular, upturned hypandrium and medially there is a faint, longitudinal line which suggests a point of former fusion. The gonopod is bulging, convex, swollen basally with a dorsal, conspicuous, elongate, somewhat spoonlike process which parallels the elongate process of the epandrium and the equally long dorsal proctiger; it is set off from the epandrium by a deep crease. Aedeagus large, exposed, hooklike, undivided. In the female terminalia the ninth tergite consists of a short, broad, gently rounded plate with a medial crease. Eighth sternite large, flat, widely depressed over the middle part. Seventh sternite with many, long, curved, stout bristles directed downward.

Distribution: Neotropical: *Senobasis almeidai* Carrera (1946); *analis* Macquart (1838); *apicalis* Schiner (1867); *boraceana* Carrera (1952); *bromleyana* Carrera (1949); *claripennis* Schiner (1867); *claviger* Rondani (1850); *corsair* Bromley (1951); *flukei* Carrera (1952); *frosti* Bromley (1951); *gyrophorus* Schiner (1868); *lanei* Carrera (1949); *lopesi* Carrera (1949); *mendax* Curran (1934); *mundatus* Wiedemann (1828); *nigriventris* Bigot (1878); *ornatus* Wiedemann (1819); *rhombungulata* Carrera (1949); *staurophorus* Schiner (1868); *tibialis* Curran (1934); *weyrauchi* Carrera (1952).

Genus *Pronomopsis* Hermann

FIGURES 240, 666, 1238, 1247, 2105, 2144

Pronomopsis Hermann, Nova Acta Acad. Caes. Leop.-Carol., vol. 96, p. 18, 1912. Type of genus: *Pronomopsis chalybea* Hermann, 1912, by original designation.

Large robust flies of brown or blue black color. Wings dark brown, the face prolonged into a curious, ventrally sharp, beaklike extension which readily characterizes them. Third antennal segment strongly dilated except at the base. Length 15 to 20 mm.

Head, lateral aspect: Head extremely long, including the face; the eye is of medium length, the occiput only moderately thick submedially and least prominent near the vertex. The occipital pile is coarse and abundant; bristles begin at the middle of the head and consist of 1 row of very slender, more or less proclinate elements. Proboscis long, strongly compressed laterally, arched above, slightly concave below; the apex is bluntly pointed; there is a prominent, medial carina over the middle third and the whole structure is extended well beyond the face. Palpus large, long, cylindrical and slightly sigmoid; it is nearly half as long as the proboscis and consists of 1 segment with numerous, basally stout bristles at the apex and ventral surface and bristly pile dorsally. The antenna is attached at the upper fifth of the head. It is about 1½ times as long as the eye, the first two segments robust, the second shortest, the third 1½ times as long as the first two, strongly attenuate near the base, widely dilated on the remainder, and widest on the outer third. This segment bears a short, conical, spine-tipped microsegment. First and second segments with numerous, long, bristly hairs on all sides, except the middle; the middle of the second segment above has at least 1 long, stout bristle.

Head, anterior aspect: The head is wide, the face unusually wide and more than one-third the head width; it is a little divergent below; there is a large, medial triangular area, the base of which is turned to the antenna, which is without pile or bristles. Sides of the face with numerous, slender bristles becoming a little stouter below and with a considerable amount of bristly pile. Subepistomal area of moderate size, not extending over the ventral surface of the beak, concave and oblique. The front is short, with longitudinal, depressed groove on either side; it bears a dense patch of bristles and bristly pile on either side diagonally from the antenna. The front is slightly wider in the middle than the upper face, the vertex strongly excavated, the ocellarium large, the sides slanting and it bears a postocellar tuft of short, coarse pile. Sides of the vertex with a dense tuft of bristly pile. Anterior eye facets only slightly enlarged.

Thorax: The mesonotum is long and quite low, pollinose and partly feebly shining with scattered, fine, bristly pile, none of it differentiated. The bristles of the lateral margin are exceptionally weak and consist of 1 notopleural, 1 or 2 still weaker supraalar, 8 to 10 postalar, and no scutellar marginal bristles. Scutellar discs rather flattened, with a few scattered hairs. Humerus densely pilose. Pleuron without bristles except on the metapleuron where they are numerous but weak. Pteropleuron as well as the upper sternopleuron and almost the whole mesopleuron densely pilose, the hairs coarse but very fine at the apices. Whole of the propleuron with similar pile. Prosternum dissociated. Metasternum pilose ventrally and laterally. Postmetacoxal area narrowly membranous. Prosternum small and fully dissociated.

Legs: The femora are only moderately stout; the hind femur, together with its tibia and basitarsus are lengthened, the femur slightly enlarged distally. The legs are unusually bare and shining, with quite scanty, suberect, setate pile, almost absent on the hind femur. All femora with a conspicuous, ventral fringe of rather long, slender, attenuate, shining, basally stout bristles and all remaining bristles very stout. The hind femur has 4 lateral, 2 or 3 dorsal on the outer half and 7 or 8 shorter ventrolateral bristles besides a medial row of 6 or 7 bristles. Middle femur with 5 prominent posterior bristles and other slender elements, a like number of anterior bristles and sometimes additional lateral bristles near the apex. On the anterior femur bristles are fewer, 2 on either side near the apex. Hind tibia with 3 dorsal, the basal element usually doubled, 4 lateral, and 1 ventral distal bristle. Middle tibia with 6 or 7 anterior, 3 or 4 scattered posterior dorsal bristles, 6 or 7 posteroventral bristles, and 4 stout ventral bristles. Anterior tibial bristles rather similar, the ventral brush of pile in ranks. Protibial apex with a very long, stout process and attached, robust, stout spine. Basitarsus with a thick, distally protruded flange. Claws sharp, pulvilli and empodium well developed.

Wings: The wings are dark brown with purplish tinge. Marginal cell closed with a short stalk; anterior branch of the third vein strongly sigmoid. Fourth posterior cell closed with a long stalk, the remaining cells open, the first posterior cell narrowly open. Anal cell closed with a short stalk. Alula large, the ambient vein complete.

Abdomen: The abdomen is at least as wide as the mesonotum; the pile is dense, appressed and setate, and on the sides longer and erect on the first 2 tergites. Males with seven tergites, the eighth totally concealed. Females with seven tergites, the eighth incorporated in a large, triangular, gently convex ovipositor. Male terminalia very large, cylindrical, the ninth segment forming a fused ring. They are half rotate, the epandrium is very large, broad, long and undivided, the dorsal proctiger large, long, conspicuous and curved upward, with a pair of prongs. Most of this process, including the prongs, may consist of an extension of the epandrium. The hypandrium or ventral portion of the ninth segment short. The gonopod is large, ventrally protruded into processes which meet distally, leaving a large, triangular, exposed cavity to the genitalia; it also has a shorter dorsal process. On the females the ninth and tenth segments are very much shorter and smaller than the eighth; the tenth bears lateral lobes, which, however, are not free. The eighth tergite and sternite form a large, triangular, dorsoventrally flattened body with both upper and lower surfaces shallowly convex.

Distribution: Neotropical: *Pronomopsis chalybea* Hermann (1912); *rubripes* Hermann (1912).

Genus *Megapoda* Macquart

FIGURES 247, 635, 1275, 1284, 1564, 1568, 1816, 2111, 2139

Megapoda Macquart, Histoire naturelle des insectes, diptères, vol. 1, p. 288, 1834. Type of genus: *Laphria labiata* Fabricius, 1805, as *Megapoda cyanea* Macquart, 1834, the only included species.

Large, remarkable flies rather readily characterized by the extremely long, slender legs, with prominent protibial protuberance and spine and basitarsal flange. The wing is exceptionally long and slender. The abdomen is elongate and moderately slender with more or less parallel sides. It is a little flattened basally, cylindroid, club-shaped distally. The type of the genus is a dark blue black fly with a yellow, ventrally produced face and bluish brown or blackish wings. The mesonotum is long, comparatively low, the third antennal segment long oval. The proboscis is quite long, a little compressed laterally on the base and from the lateral aspect rather strongly attenuate to a comparatively slender point. The outstretched length of the anterior and posterior legs 65 to 70 mm. Length 28 mm.

Head, lateral aspect: The face is prominent, especially below, somewhat triangular, the anterior margin being straight. Eye slightly but distinctly wider below, strongly flattened anteriorly. Occiput mostly obliterated in profile, becoming very narrowly visible on the lower fourth. The pile is scanty, fine and bristly; the bristles become a little more stout dorsally; those in the middle tend to be curved outwardly. The proboscis is exceptionally long and slender and from the lateral aspect distinctly attenuate beyond the base and again near the apex, leaving the apex rather slenderly pointed and more or less cylindrical. The base is somewhat compressed laterally. At the apex are a few, fine, short, minute hairs and at the base a few, slender, bristly hairs. The proboscis is directed straight forward; its whole length is considerably longer than the head and it extends well beyond the antenna. Palpus long, without pore, slender, cylindrical, sigmoid, extending far beyond the face. It is composed of a single segment and bears numerous, slender bristles on the apex and all sides except medially.

Antenna attached at the upper fourth of the head; the first two segments are short and robust, the first a little longer than the second. The third segment is twice as long as the first two combined, long, oval, more attenuate at the basal half than on the distal half. The apex of this segment is rather blunt, with a large, flat, apical microsegment of which only the rim remains laterally but which has a short, dorsomedial, lappet-like extension and bears in the middle a short, visible spine; this middle part of the microsegment is somewhat depressed and concave. First segment with several rather long, slender bristles ventrally and ventrolaterally, with more numerous, more slender, bristly hairs dorsally; second segment with long, bristly hairs ventrally; dorsally from near the base are 1 extremely long and 2 shorter, stout, black bristles besides several still shorter bristly hairs. Third segment with a tuft or row of 5 or 6 bristles placed dorsally in the middle of the segment.

Head, anterior aspect: The face below antenna is less than a third the head width and rather strongly divergent below. Subepistomal area rather large, long and oblique, concave and bare; the face is bare below, with dense, pale pollen above; the face itself is clay yellow but the lateral epistoma, cheeks, front and vertex black. The face is apilose and bears a single pair of long, rather slender, black bristles in the middle of the epistomal margin. Front short but wide, bare, with a tuft of fine, bristly hairs in the middle on either side which curve outward on the apex. The lower anterior corner of the vertex beside the eye margin has 5 or 6 slender. short, bristly hairs. Vertex narrower than face, deeply excavated, with vertical sides. The ocellarium large and rather high; it bears small ocelli and a tuft of fine, short, bristly hairs on the posterior half behind the ocelli. Anterior eye facets moderately enlarged, strongly flattened.

Thorax: The pleuron is shining. The elongate mesonotum is brownish black pollinose and abruptly vertical anteriorly, gently sloping behind. Pile of mesonotum fine, scanty and short, bristly in character, with almost no pile dorsally. There is a patch of rather stiff, very short setae anteriorly opposite the humerus and continued behind the humerus with some 10 or more longer, slender, bristly hairs; acrostical elements appear to be absent; there is a fine, poorly differentiated band of minute, dorsolateral hairs that become slightly longer in front of the scutellum. The complement of stout, though rather short, lateral bristles includes 1 moderately long notopleural, 1 shorter supraalar, 2 still shorter postalar bristles. Scutellum short, more or less flattened basally but broadly rounded apically and without marginal bristles, with only minute hairs. Propleuron with scattered, bristly hairs ventrally and on the pronotum; the latter is notched dorsally. The posterolateral pronotum has numerous, fine, bristly hairs, the anterior part is deeply separated from the posterior portion. The anterior part shelves forward as a somewhat hollowed lip. Mesopleuron with a few, fine, scattered hairs and no bristles. There are still fewer, fine, scattered hairs posteriorly on the sternopleuron, the upper pteropleuron, and the posterior hypopleuron where they are a little longer. Metapleuron unusually strongly protuberant and convex posteriorly, with a tuft of long, fine, bristly pile and a second tuft beneath the squama. Metanotum exceptionally swollen posteroventrally, with a lateral tuft of bristly hairs; tegula with fine, short hairs; postmetacoxal area membranous; anterior basalare with a few, long, fine hairs ventrally. Prosternum small and dissociated.

Legs: The legs are unusually long and slender; the anterior and middle femora are of about the same length; the hind femur is distinctly longer than the middle femur. Hind femur a little swollen distally, its tibia swollen only towards the apex where it is extended a considerable distance away from the basitarsus and bears a conspicuous tuft of spinous bristles. All the legs shining, with very scanty, fine, appressed, bristly pile which is quite short. In the type of genus the following complement of bristles is present: On the hind femur 5 lateral bristles, 4 of them on the basal half, 2 dorsolateral bristles on the outer fourth, and ventromedially a row of short, slender bristles and bristly hairs, the basal ones a little longer. This tibia ventrally has only a few, fine hairs and ranked setae at the immediate apex, the latter continued to the middle medially. There is dorsomedially 1 stout bristle near the base and beyond it 2 or 3 fine, bristly hairs. An equally stout dorsolateral counterpart is followed by 6 short, stout bristles, and laterally with 4 longer, stout bristles which begin at the basal third and are preceded by 2 much shorter ones; also there are 3 rather long, stout, ventral bristles on the outer fourth. Apex with 1 stout lateral and 1 ventrolateral bristle and 2 ventral bristles, besides 8 on the medial protuberance, or swelling. Middle femur with 6 stout anterior bristles, 6 similar posterior bristles, and 8 short anteroventral bristles. This tibia has 6 moderately long, stout, anterior bristles, the last 2 becoming more nearly anterodorsal, 5 short, dorsal and 4 or 5 short posterodorsal bristles, 6 rather prominent posterior bristles, and 4 stout, ventral bristles.

Anterior femur with 2 or 3 posterodorsal bristles, 1 anterodorsal near the apex, 3 long, anteroventral bristles on the outer half, besides 5 short, slender, basal bristles. This tibia has 7 anterodorsal bristles, all short, 1 anterior and 1 very short anteroventral bristle on the basal third, also dense, ranked setae on the anterior outer half. Anterior tibia also has 3 or 4 posterodorsal distal and 6 posterior bristles and it has 4 short, ventrobasal, and 2 quite long, stout, ventral bristles on the outer sixth. The apex bears a stout, distally attenuate, curved and sharp spine.

Basitarsus with a conspicuous, distally extended lobe or flange without teeth. All the basitarsi are unusually long and slender and in the male the anterior basitarsus is as long as all the remaining segments; the second and third segments also long and slender. Anterior basitarsus orange in color in the type of genus; remainder of legs everywhere black; all bristles and pile black. Tarsi end in small, slender, sharp claws, well developed pulvilli and fine, long, slightly flattened empodium.

Wings: The wings are long, slender and brownish black, with slight purplish blue reflections. Marginal cell narrowly closed with a short stalk; anterior branch of third vein sinuous, ending above the wing apex; posterior branch ends far behind the wing apex; first posterior cell extremely long and unusually narrow, widely, open; fourth posterior cell closed with a long stalk; anterior crossvein enters the middle of the discal cell. The middle end vein of the second basal cell is moderately long; anal cell long, narrow, closed with a short stalk; the alula wide, the ambient vein complete.

Abdomen: The abdomen is as wide as the mesonotum on the first tergite and the base of the second; beyond the second tergite the sides are nearly parallel or very slightly widened in the male. Abdomen black with brilliant purple and blue reflections. Second tergite distinctly longer than the others, though not greatly longer than the third; remaining tergites progressively shorter. Males with seven tergites, the seventh four-fifths as long as the sixth, and beneath it apically the edge of the eighth tergite can be seen. Female with seven tergites, the eighth and beyond forming the ovipositor. Pile of abdomen abundant, appressed and setate, a few fine, long hairs on the sides of the first tergite and some longer setae on the posterior corners of the second tergite; the basal half of these tergites is largely bare; the first tergite laterally has 5 pairs of slender bristles. Male terminalia large, conspicuous, rotate one-half with a deep, posterior cleft, which is the space between gonopods as seen from above. Gonopod massive, with considerable depth and only a short, blunt, true dorsal process. Epandrium uncleft, with long proctiger and fused to hypandrium. Female terminalia short and cylindrical, very slightly higher than wide, the ninth and especially the tenth tergites quite short; the eighth tergite appears to be quite separate from the eighth sternite. This appears to also be true of the ninth tergite.

Distribution: Neotropical: *Megapoda labiata* Fabricius (1805) [=*?cyanea* Macquart (1834), *?rufimanus* Perty (1833].

Genus *Doryclus* Jaennicke

Figures 236, 647, 1278, 1287, 2104, 2118, 2169

Doryclus Jaennicke, Abhandl. Senckenberg. naturf. Ges., vol. 6, p. 366, 1867. Type of genus: *Asilus distendens* Wiedemann, 1828, by original designation.

Ampyx Walker, List . . . Dipterous insects . . . British Museum, suppl. 3, p. 564, 1855. Type of genus: *Asilus distendens* Wiedemann, 1828, as *Ampyx varipennis* Walker, 1855. Preoccupied, Crustacea, 1845.

Small or medium size flies with slender wings and all legs elongate and mostly slender. Characteristically the long hind tibia is quite slender on the basal half, becoming strongly dilated distally and on this swollen part it bears on all sides dense, coarse, more or less appressed, black, bristly pile. Hind basitarsus likewise swollen conspicuously and as long as all remaining segments, which are gradually reduced in size. These flies are shining and polished with scanty, scattered pile and bristly setae; bristles are chiefly restricted to the legs and are sharp and thornlike. Pleuron especially polished and bare and the metanotum greatly swollen, elongate and obliquely sloping backward and downward. Face short, concave, the epistoma quite large and oblique; the long proboscis and long, large, curved palpus are extended straight forward. Length exclusive of legs 10 to 15 mm.

Head, lateral aspect: The length is moderate with the eyes slightly longer on the lower half and convex both anteriorly and posteriorly. The face is well developed but exceptionally short vertically and strongly concave. The prominent subepistoma is large and oblique. The cheeks do not extend below the eyes. Occiput almost obliterated in profile. There is a thin line of white pubescence on the lower two-thirds of the occiput as it extends medially inward, nearly plane to the eye margin. Pile of lower occiput restricted to a few bristly hairs in 1 row; these hairs placed deeply medial, and on the upper third of the occiput somewhat longer hairs mixed with weak, curved bristles. The proboscis is quite elongate, thrust horizontally forward, extending well beyond the antenna. It is rather strongly compressed laterally, each side being gently convex. The outer half of the ventral surface is quite plane and before it basally is a ventral, submedial swelling. Apex dorsally arched downward to a blunt point with fine pile above and below. Beyond the middle dorsally is a low keel which is not very long. Palpus quite long and conspicuous, cylindrical, extended well beyond the face and curved upward. It bears considerable bristly pile on all sides.

The antenna is attached at or above the upper fourth of the head and is nearly as long as the head. First segment robust and swollen with 4 or 5 dorsal bristles. Ventral surface with at least 1 stout bristle and a number of coarse, bristly hairs. This segment is a little longer than high. Second segment much smaller, with bristly hairs below and with 2 to 3 conspicuous, and stout, long bristles above. Third segment as long as the first two combined, pyriform, with the basal sixth no wider than the second segment and beyond this point this segment is rather abruptly and strongly expanded above and below until it is roughly rhomboidal. The apical part of the third segment is also thick and swollen medially; the blunt apex bears a quite small opening with minute, nearly concealed spine.

Head, anterior aspect: The head is wide, at least two times the height and the face is also quite wide. The face is a little more than a third the head width and it is a little wider below. The front is slightly widened and the vertex of nearly the same width. Surface of face polished and bare except for a lateral triangle of micropubescence. In the middle the subepistomal margin may bear 2 or 3 minute hairs. The front is strongly swollen over the medial half, divided from the lateral part by a rather distinct, longitudinal crease. This lateral portion bears a patch of long, coarse hairs, and similar, stouter hairs occur submedially immediately behind and to one side of each antenna. Vertex rather prominent but not high, with the ocelli large, protuberant, crowded forward and pile restricted to the postocellar area. Frontal creases continued behind the vertex. Anterior eye facets a little enlarged.

Thorax: The mesonotum is comparatively high anteriorly and slopes off posteriorly. The entire thorax is exceptionally high. Mesonotum anteriorly abrupt and a little concave medially. The surface bears moderately abundant, undifferentiated, fine, bristly hairs or setae which are nearly erect and which become a little longer and more scanty laterally; bristles are virtually wanting. On the notopleuron are 2 quite slender rather short elements and above the wing are even shorter bristles; the postalar callosity has 1 similar, weak bristle. The comparatively thin, basally flattened, posteriorly convex scutellum has only a few scattered hairs. Humerus anteriorly with a few fine, coarse hairs; it is situated well below the anterodorsal, swollen part of the mesonotum. Metanotum peculiar and remarkably large and swollen with a little pollen and a few fine, scattered hairs in the middle and also ventrolaterally. Much of the mesonotum has micropubescence or pollen but the sides and almost the whole pleuron polished and bare. The propleuron is reduced in length and pile, the pronotum indented medially and bearing a few coarse hairs. Mesopleuron, sternopleuron, pteropleuron, and hypopleuron with sparse, fine pile; similar but more copious and longer pile is situated on the metapleuron. Postmetacoxal area with a narrow, complete band of chitin behind the coxa. Prosternum completely dissociated.

Legs: All the femora are long and slender, especially the hind femur, which is slightly dilated distally and curved medially on the basal half. The legs are polished and bare, except for occasional, minute hairs and comparatively short, almost stout, sharp, thornlike bristles. The complement of bristles on the hind femur consists of 4 short lateral, 4 dorsolateral confined to the outer half, of which the last 3 bristles are conspicuous, and 5 ventral bristles chiefly distal and stronger toward the apex. This tibia bears 4 lateral and 6 dorsal bristles with the basal element double and the last 2 bristles shifted to a slightly more lateral position. The hind basitarsus has exceptionally stout, rather numerous bristles. Middle femur rather similar to the hind pair, with 4 anterior, 2 apical anterodorsal, 2 posterodorsal, and 4 to 6 ventral bristles. Its very long, slender tibia, which is slightly dilated distally, bears 8 lateral and 6 posterodorsal bristles, with the basal element doubled, and 6 posteroventral, the basal elements weak. There are also 4 ventral bristles and 1 prominent ventrolateral bristle near the apex. Anterior femur with weaker bristles. There are 4 or 5 distal, short, posterodorsal elements, 1 more conspicuous anterodorsal bristle, at the apex and 3 ventral bristles at the apex. This tibia is slightly narrowed at the base and bears 8 short, anterodorsal bristles, 6 anterior bristles or stout setae, with the last near the apex being quite stout and conspicuous. It also bears 7 posterior bristles and 2 or 3 prominent distal ventral bristles, besides a considerable number of miscellaneous setae; along the middle is only a ventral brush of dense, ranked setae. Apex with a long protuberance and a rather short, stout spine and the basitarsus with a curved, distally directed flange and minute, short, conical denticles.

Anterior basitarsus quite long, slender, longer than the remaining segments combined. Claws slender, sharp; pulvilli well developed and broad, with only 1 rib; empodium short, bladelike. Ventroapical bristles beside the empodium are flattened and swollen.

Wings: The wings are hyaline and avillose, with most veins pale. Marginal cell narrowly closed, wide apically. Anterior branch of third vein long, sinuous, ending well above the wing apex, the posterior branch far behind. First posterior cell slightly narrowed, fourth posterior cell closed with a short stalk, or closed in the margin or narrowly open. Posterior crossvein short, anal cell closed, the third vein branches opposite the end of the discal cell. The wing is long and slender; the ambient vein complete; the alula well developed.

Abdomen: The abdomen is rather small and short, considerably shorter than the wings and at the base no wider than the mesonotum. It is largely bare, with prominent, transverse striations and scanty, fine, erect pile, a little more abundant posteriorly on each segment. Some setae or coarse pile occur on the last 2 segments, but no bristles are present. The middle of the second segment and the subbasal part of the third segment each have a transverse fossa. Fourth to seventh segments with an odd, oval-shaped pitlike depression sublaterally, perhaps the basis for muscle attachment. Males with seven segments, the seventh rather short. Females likewise with seven segments, the last two rather short and of equal length. Male terminalia elongate, bulblike, somewhat swollen and completely rotate. The long epandrium is simple and distally a little narrowed; the proctiger emerges from below at the end. The gonopod represents the most prominent part and is swollen and convex laterally, though a little narrowed and compressed posteriorly and with a lateral posterior notch; the halves almost enclose the genital cavity, which faces upward because of rotation. I have not dissected these terminalia but I do not find any clear evidence of the hypandrium, although what appears to be the eighth tergite is well tucked in beneath the seventh segment. Female terminalia consists of a rather long, conical process, attenuate posteriorly, swollen and widened at the base and directed upward. The ninth and tenth elements are borne at the end, have considerable fine, radiating pile and are of the same width as the apical part of the eighth segment. Terminal segment creased and partly divided medially.

Distribution: Neotropical: *Doryclus carrerai* Bromley (1951); *crassitarsis* Macquart (1846); *distendens* Wiedemann (1828) [=*cyaneiventris* Macquart (1846), *guentherii* Lynch Arribálzaga (1882), *latipes* Wulp (1870), *varipennis* Walker (1855)]; *mexicanus* Bromley 1951); *panamensis* Curran (1942); *plaumanni* Bromley (1951).

Genus *Pseudoryclus* Carrera

Figure 427

Pseudoryclus Carrera, Arq. Zool. São Paulo, vol. 8, p. 75, 1952. Type of genus: *Megapoda rufiventris* Roeder, 1887, by orginal designation.

Polished and shining flies, mostly black, of bare aspect and greatly reduced pile. From *Doryclus* Rondani, which they resemble, they are distinguished by the comparatively simple hind tibia and tarsus, which are not only less swollen distally but do not bear the dense brush of coarse pile. The abdomen is larger. Like *Doryclus* they are flies of marked drooping aspect and slow flight, alighting among low herbage. Length 15 to 20 mm.

Head, lateral aspect: The head of moderate length, the face in profile forming a low triangle, gently concave beneath the antenna. The occiput is scarcely visible in profile either above or below and only slightly in evidence in the middle of the head; its pile is bristly in character and scanty. There is a row of submarginal, slender, proclinate bristles beginning below the middle of the head. The proboscis like its relatives is extremely long, laterally compressed, plane or slightly concave below, gently arched to a distal point above, with a strong carina along the subbasal portion. The single segmented palpus which does have a trace of the basal segment is extremely long, conspicuous, gently sigmoid, cylindrical, and densely beset with bristles. It is more than half as long as the proboscis. The antenna is attached at the upper third of the head, the first two segments are short, the first segment strongly swollen and bears long, slender bristles ventrally, laterally, and dorsally near the apex. Second segment with shorter bristles below but still longer ones above, 2 or 3 of which are conspicuous. Third segment narrow at the base, strongly dilated on the outer third with short, truncate, spine-tipped microsegment.

Head, anterior aspect: The head is wide, but not wider than the thorax; the upper face is nearly one-third the head width, slightly divergent below, its height greatly reduced in the middle on account of the very large, triangular, concave, oblique, subepistomal area. Sides of face with a triangle of pubescence, the remainder polished. Front broadly raised over the middle, shining and bare, wrinkled, with numerous, bristly hairs laterally. Vertex moderately excavated, the ocellarium comparatively narrow, extended behind the ocelli where it bears a dense tuft of anteriorly curved bristles. Anterior eye facets a little enlarged, flattened, and the whole eye waxy.

Thorax: The thorax is long, comparatively low, the anterior margin abrupt and vertical, the pronotum sunken, the humerus with 3 small humps. The mesonotum is considerably more narrow than the thorax and bears a somewhat pinched or compressed aspect. It is partly pollinose, the pile scattered, fine and bristly with a differentiated row of acrostical elements but with no dorsocentral elements present except poorly in front of the scutellum. Humerus with bristly pile and perhaps weak bristles. The lateral complement of stout bristles consists of 1 notopleural, 1 supraalar, 1 postalar, and no scutellar bristles. Scutellar disc with scattered, bristly hairs, otherwise bare. Pleuron vitreus, the pronotal collar with numerous, slender bristles and bristly pile, likewise the cervical sclerites and the lateral pronotum. Lateral propleuron bare anteriorly, with 4 setae posteriorly. Whole of the mesopleuron, upper sternopleuron, pteropleuron, and anterior hypopleuron with scattered, fine, erect, bristly hairs. Similar but more abundant pile on the metapleuron. Posterior hypopleuron with a rather conspicuous, large patch of suberect, dense pile. Lateral and ventral metasternum pilose; the former sends a thin tongue of chitin inward behind the posterior coxa. Postmetacoxal area with a linear tongue of chitin extending inward from the lateral part. Prosternum small and fully dissociated.

Legs: The legs are polished and almost without pile; all the legs lengthened, the hind pair more so. Bristles everywhere stout and rather numerous on the femora and on all of the tibia. These bristles are short, except the more distal elements along the ventral surfaces of the tibia where they are long and conspicuous. The hind femur bears 6 or 7 lateral, 1 dorsolateral at the outer seventh, 10 or 11 ventral bristles, some of them doubled, and 1 medial bristle at the apex. Hind tibia nearly twice as wide at apex as at base. There is a ranked brush of setae confined to the distal half of the medial surface. It bears 7 dorsal bristles, the basal element double, 3 lateral, 3 long and 3 short posteroventral bristles. Middle femur with 5 posterior, 10 anterior, and 7 or 8 ventral bristles. Middle tibia with 8 anterior, 5 dorsal, 6 posterior, and 4 ventral bristles, the apical circlet excluded. Anterior femur with 4 or 5 minute, dorsal bristles or setae and a like number of posterodorsal bristles; both of these groups are confined to the outer half. They have a partly double row of 6 or 7 bristles ventrally. Anterior tibia with 1 long, stout bristle anteriorly near the apex, 1 ventrally not quite so close and still farther back 1 posteroventral bristle. There is an anterodorsal, a posterodorsal, a posterior and posteroventral row of short bristles, each containing about 7 elements. The apex of this tibia has a long, stout, setate process and stout spine.

The basitarsus has a distally produced denticulate flange. Anterior basitarsus exceptionally elongate and robust, longer than the remaining segment or the remaining basitarsus. Claws sharp, pulvillus and empodium well developed.

Wings: The wings have an obscurely banded pattern; marginal cell widely open, anterior branch of the third vein strongly sigmoid, ending well before wing apex; posterior branch far behind. Fourth posterior cell closed, remaining posterior cells widely open. Anal cell closed and stalked; alula large, ambient vein complete.

Abdomen: The abdomen is robust, as wide as the mesonotum and widest on the third to fifth tergites. Pile short, scanty, erect and setate. Bristles absent. Male with seven tergites, the eighth concealed. Females likewise with seven tergites, the eighth forming a triangular, convex ovipositor. Male terminalia conspicuous, elongate, cylindrical, half rotate; the ninth segment is narrowly fused laterally and extended as a large, extensive, undivided, shieldlike epandrium; the gonopods are apposed distally. The hypandrium is widely cleft nearly to the base, the genital cavity open. Ninth and tenth segments of the females short and cylindrical. The eighth tergite and sternite are triangular, large, dorsoventrally depressed and shallowly convex on both surfaces.

Distribution: Neotropical: *Pseudoryclus bicolor* Bellardi (1861); *rufiventris* Roeder (1887).

Genus *Pseudorus* Walker

FIGURES 235, 668, 1279, 1288, 2168

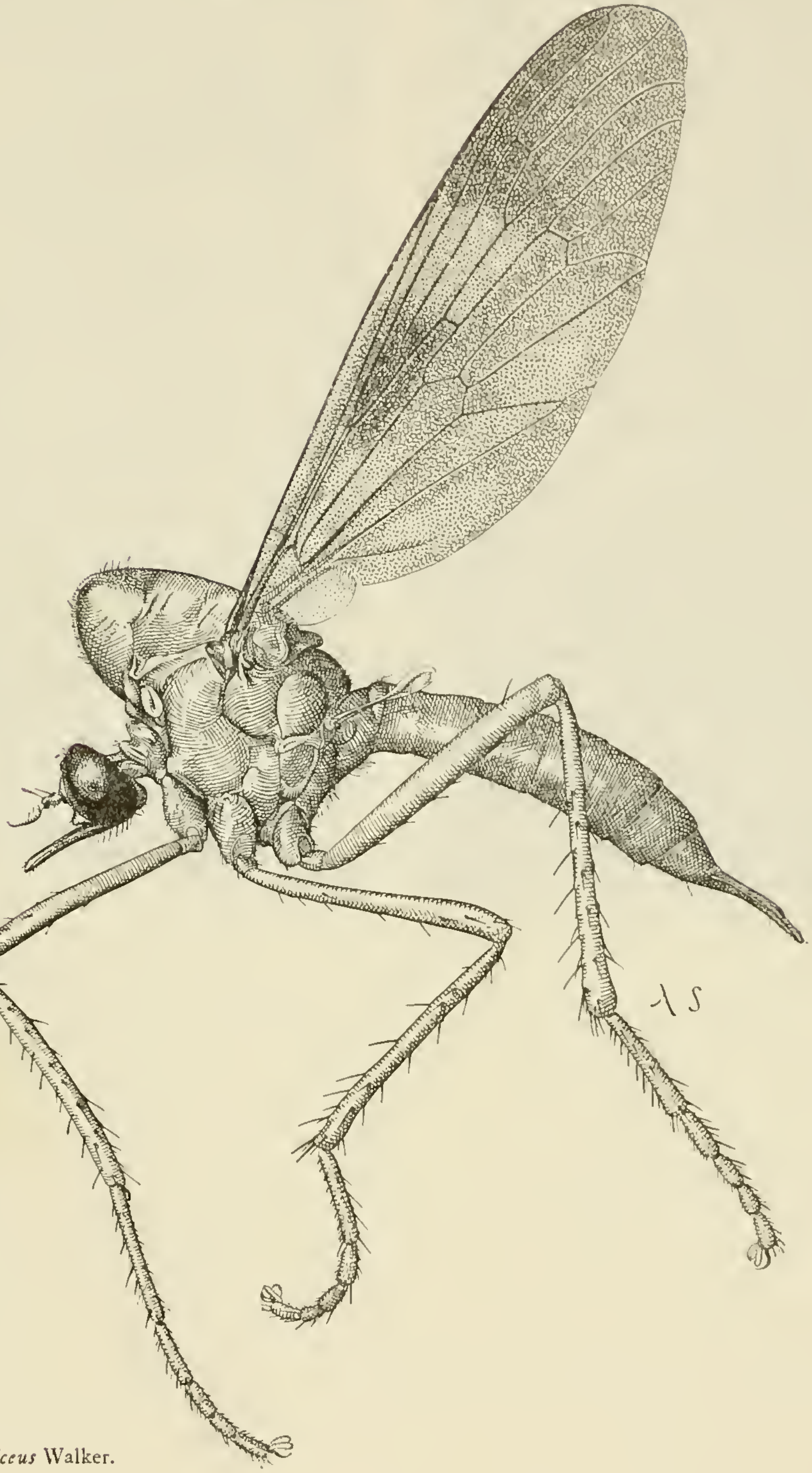
Pseudorus Walker, Insecta saundersiana, vol. 1, pt. 2, p. 103, 1851. Type of genus: *Pseudorus piceus* Walker, 1851, by monotypy.

Easily recognized by the enormous, peaked, anteriorly produced and humpbacked mesonotum. These are medium size flies with the third antennal segment greatly widened and angulate dorsally. The fourth posterior cell is narrowly open or closed in the margin. Proboscis long and slender, extending a little beyond the antenna and slightly compressed laterally. Length 17 mm.

Head, lateral aspect: The face is moderately produced on the upper two-thirds with a strong, ventral, liplike extension abrupt dorsally, obliquely truncate below. The eye is long, very distinctly wider on the lower half and strongly convex. The posterior eye margin is plane through the middle, convexly recessive below, more gently above. Occiput not visible in profile. The pile of the occiput consists of a single row of slender, bristly hairs set deeply back from the eye margin. The proboscis is directed horizontally forward and a little upward; it is slender and extends a little beyond the antenna; that portion which is beyond the face is nearly as long as the head. It is a little compressed laterally; the apex is anterodorsally punctate and bears several, stiff, bristly hairs above and below and with shorter pile continued ventrally nearly to the base. Palpus long and slender, but not extended beyond the face; it is cylindrical, with numerous, long, bristly hairs ventrally and others at the apex which are a little more stiff. There appears to be only one segment, with a trace of a basal segment. Antenna attached near the upper third of the head, the basal segments short and stout, the first being a little longer than the second. The third segment is quite large, somewhat thickened beyond the middle and from the lateral aspect very broad across the middle, and triangular dorsally, gently convex below. It is nearly 3 times as wide as the first segment, bluntly rounded apically and bears an apical pit with short visible spine. First segment with 3 pairs of bristly hairs ventrally, a stout bristle dorsolaterally, and some setae. Second segment with 5 transverse basal ventral bristles and from the base dorsally 1 quite long, white bristle, longer than the first 2 antennal segments. Third segment orange brown.

Head, anterior aspect: The face below the antenna is not quite one-third the head width and the sizes are parallel to the epistoma, slightly narrowed at the cheeks. Face bare, except along the sides, which are densely erect pubescent; it is without pile except for a row of 5 or 6 pairs of slender, bristly hairs along the liplike portion of the lower face. Subepistoma prominent, gently oblique, and shallowly concave. The front is rather large, wide, and is raised through the middle, with 3 or 4 bristly hairs along the eye margin, which is situated near the vertex, and 1 or 2 similar hairs laterally in front of the ocelli. Vertex no wider than the upper face, rather deeply excavated, the ocellarium unusually large and prominent, the ocelli reduced and bearing between the posterior ocelli 3 pairs of slender, bristly hairs and 5 or 6 longer pairs behind. Anterior eye facets moderately enlarged and flattened.

Thorax: The thorax is everywhere vitreus and shining. The whole mesonotum is developed into a high, obtuse, dorsally rounded, peaklike cone with the anterior portion steeper. Pile of mesonotum apparently without acrostical elements but with some very delicate, bristly pile laterally on the hump and on the whole of its anterior overhanging surface; it seems to correspond to an irregular band of dorsocentral pile. In the type of genus before me there is no pile posteriorly on the mesonotum but it may have been denuded. Humerus rather strongly protuberant, set off by almost rectangular crease and bearing 3 or 4 fine hairs. The type bears laterally 1 short, moderately stout, notopleural bristle, apparently 1 or 2 postalar bristles, and possibly 1 or 2 supraalar bristles, now denuded. Scutellum apparently without bristles; it is rather thin but convex, fused at the base, and lies rather flatly upon the extensive metanotum. There are at least 3 or more pairs of moderately developed, short, dorsocentral elements in front of the suture. Propleuron with a few bristly hairs ventrally and a narrow band of similar hairs on the pronotum. Mesopleuron with a few bristly hairs dorsally, 2 or 3 similar ones in the upper middle sternopleuron. Metapleuron with a conspicuous, posterior



Text-Figure 29.—*Pseudorus piceus* Walker.

patch of long, bristly pile, the posterior portion of the mesopleuron strongly protuberant and convex; hypopleuron apilose but with a patch of exceptionally high, conspicuous pubescence posteroventrally. Metanotum exceptionally prominent, long, posterodorsally swollen, with a dense patch of bristly pile laterally. Lateral metasternum with long, bristly pile throughout its length. Ventral metasternum chitinized, isolated, and bearing similar bristly pile. Postmetacoxal area narnowly chitinized, immediately behind the coxa, with a short triangular plate, followed by a more extensive, longer, wide membranous area. Tegula pubescent only.

Legs: The legs are rather elongate and slender throughout, the middle and the hind femora distinctly though slightly thickened subapically. The hind tibia is a little longer than the femur and slender throughout, slightly thickened at the apex. The legs are vitreous, with short, stout, sharp, oblique bristles. In the type of genus the following complement of bristles is present: on the hind femur 6 ventrolateral, 1 dorsolateral subapical; its tibia has 4 slender, dorsomedial, bristly hairs, 5 short dorsal bristles, 5 anterior bristles, 4 ventrolateral bristles. Middle femur with 3 posteroventral bristles in the middle and with apical and subapical posterodorsal bristles, likewise with similar corresponding anterior bristles. This femur also has 1 anteroventral at the outer fourth, another basally and 4 short, anteroventral bristles. Middle tibia long and slender, with 7 anterior bristles, 3 short, dorsal bristles at the base, 8 posterodorsal, 8 posterior, and 5 ventral bristles. Anterior femur with 3 slender, posterodorsal bristles on the outer half, besides 2 or 3 others placed a little lower down, and a dorsolateral and dorsomedial bristle placed apically and 2 ventral bristles in the middle. Anterior tibia with 1 anterior bristle at the base, 2 at the apex, 5 anterodorsal, 6 posterodorsal, 7 posterior, and 5 ventral bristles, besides 2 anteroventral distal bristles. Apex of anterior tibia with a long, curved protuberance and spine appressed against a basitarsal flange. Tarsi end in small, slender, sharp claws, well developed pulvilli, and a fine, long, bristlelike empodium.

Wings: The marginal cell is closed with a short stalk; 3 submarginal cells are present, there being a rectangular crossvein at the basal third of the second submarginal cell. The second submarginal cell takes origin before the end of the discal cell and all the posterior cells are widely open, except the fourth, which is narrowly open or closed in the margin. End veins of the discal cell of equal length; middle vein of the second basal cell long, the anterior crossvein enters the discal cell at the basal third. The anal cell is closed with a long stalk; alula twice as wide as the costal cell, not produced distally; ambient vein complete.

Abdomen: The abdomen is slightly wider at the end of the third tergite than at the base and at this point distinctly wider than the mesonotum. It is strongly tapered beyond the third tergite; 7 tergites present in the female, the eighth and beyond incorporated in the ovipositor. Pile of abdomen scanty, fine and suberect, mostly minute. Sides of first tergite with a few delicate, bristly hairs. Ovipositor elongate, strongly flattened dorsoventrally, quite attenuate posteriorly and triangular toward the base. The eighth tergite is nearly as long as the previous two, the ninth and tenth shorter but slender.

Distribution: Neotropical: *Pseudorus d'andrettae* Carrera (1949); *hermanni* Carerra (1949); *piceus* Walker (1851).

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